Texas Birth Defects Registry Annual Report

Birth Defects Among 1999–2020 Deliveries

Birth Defects Epidemiology and Surveillance Branch
Texas Department of State Health Services
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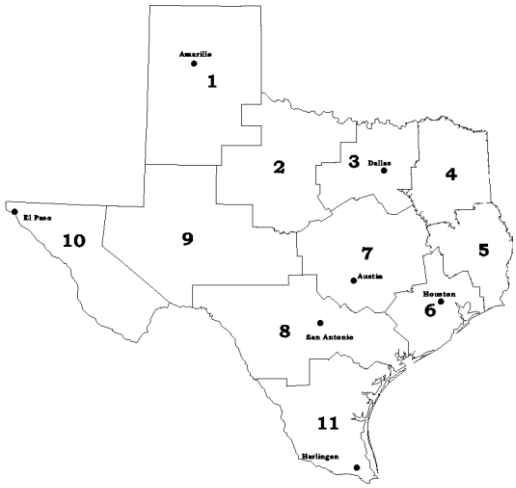
Scope of this Report

This report presents information on selected birth defects among deliveries during 1999 through 2020 to women who were residents of Texas at the time of delivery.



Case Definition

To be included as a case in the Texas Birth Defects Registry, all of the following criteria must be met:

- The mother's residence at the time of delivery must be in an area covered by the registry. During 1999–2020, the registry covered the entire state of Texas.
- The infant or fetus must have a structural birth defect or developmental disability monitored by the registry.
- The defect must be diagnosed prenatally or within one year after delivery. This is extended to six years of age for special cases, currently only for fetal alcohol syndrome.

The current case definition includes all pregnancy outcomes (live births, spontaneous fetal deaths, and induced pregnancy terminations) at all lengths of gestation. Prior to April 5, 2001, when the current case definition was adopted, the registry did not collect information on birth defects among fetal deaths before 20 weeks of gestation. Most 1999 and much of year 2000 surveillance activities were completed at the time this case definition went into effect. As a result, data in the Texas Birth Defects Registry for deliveries before 2001 include only a very small number of fetal deaths before 20 weeks of gestation.

Data Collection

The Texas Birth Defects Registry uses active surveillance. This means it does not require reporting by hospitals or medical professionals. Instead, trained program staff members regularly visit medical facilities where they have the authority to review logs, hospital discharge lists, and other records. From this review, a list of potential cases is created. Starting with deliveries during 2009, we began to also use Texas fetal death certificates with a congenital anomaly as the underlying cause or as a contributing of death (codes Q00.0 through Q99.9, International Classification of Diseases, Tenth Revision (ICD-10)) or with a congenital anomaly reported on the certificate to identify potential cases. Program staff then review medical charts for each potential case identified. If the infant or fetus has a birth defect covered by the registry, detailed demographic and diagnostic information is abstracted. That information is entered into the computer and submitted for processing into the registry. Quality control procedures for finding cases, abstracting information, and coding birth defects help ensure completeness and accuracy.

Records in the birth defects registry were matched to birth certificates and fetal death certificates filed with the Vital Statistics Section of the Texas Department of State Health Services. When a record in the birth defects registry matched a birth or fetal death certificate, and information was not missing from the matching certificate, the analysis for this report used demographic data from the birth or fetal death certificate for the following: date of delivery, mother's date of birth, mother's race/ethnicity, and mother's county of residence at the time of delivery. Information on the sex of the infant or fetus was handled a bit differently. We used the sex reported on the matching birth or fetal death certificate unless information abstracted from medical records indicated the sex was ambiguous, in which case we used the information from medical records. When a registry record did not match a birth or fetal death certificate, or when information was missing from the certificate, then this report used demographic data abstracted from medical records.

Regardless of the source of demographic information for this report, all diagnostic information was abstracted from medical records.

Data Analysis

Results are presented for 50 selected types of birth defects among deliveries during 1999 through 2020, regardless of whether the birth defect occurred alone or together with others. Appendix B lists the modified BPA codes used to define these birth defects, and Appendix C provides a glossary of birth defects and related terms.

Severe microcephaly, one of the types of birth defects presented in this report, is defined as a diagnosis of microcephaly, small head, or small brain, plus a head circumference measurement at birth that is less than the third percentile for sex

and gestational age, based on the International Fetal and Newborn Growth Consortium size-at-birth standards (1).

Because an infant or fetus often has more than one birth defect, and not all monitored birth defects are included in these analyses, it is not meaningful to sum all diagnostic categories in the tables to obtain the total number of children with birth defects. In the data tables, totals are shown in the line labeled, "Infants and fetuses with regular reportable birth defects."

Tables include the number of cases found, the estimated prevalence per 10,000 live births, and the 95% confidence interval for the prevalence. A case is an infant or fetus with the specified birth defect. Birth prevalence was calculated as follows:

$$\frac{\text{number of birth defect cases in an area and time period}}{\text{number of live births in the same area and time period}} \times 10{,}000$$

The denominators used in calculating prevalence are shown in Appendix A.

The prevalence is an estimate of the true prevalence, which can never be known with certainty. The 95% confidence interval contains the true prevalence of a birth defect 95% of the time. A wide interval indicates the uncertainty stemming from small numbers. This report displays 95% confidence intervals based on the Poisson distribution when there are 100 or fewer cases and based on the normal distribution when there are more than 100 cases.

We used Poisson regression to identify birth defects with statistically significant differences in prevalence between maternal age groups, maternal race/ethnic groups, and between males and females. These birth defects are marked with an asterisk in Tables 3, 4, and 5.

Another simpler approach to determine whether the prevalence of a particular birth defect differs between groups, for example, between males and females, is to examine the 95% confidence intervals for each group's prevalence. If the 95% confidence interval for the prevalence among males does not overlap with the 95% confidence interval for females, we consider the prevalence values to be statistically significantly different. However, this method is more conservative and has less power than Poisson regression and will usually identify fewer significant differences between groups than Poisson regression.

Changes Affecting Analysis

Starting with the 1999–2017 Annual Report, the following changes were made to the types of birth defects shown:

- Added a category for "double outlet right ventricle." In reports published prior to the 1999-2017 Annual Report, diagnoses of double outlet right ventricle were included in the category "transposition of the great vessels."

- Removed diagnoses of double outlet right ventricle from the category "transposition of the great vessels." As a result, the prevalence of transposition of the great vessels is lower than in reports prior to the 1999-2017 Annual Report.
- Changed the category "congenital hip dislocation" to "congenital hip dislocation without hip dysplasia" to correspond with changes we made in how we collect information on birth defects of the hip. Our surveillance staff no longer list congenital hip dislocation if the infant also has hip dysplasia (these children are listed as having hip dysplasia, a condition not shown in this report). As a result, the prevalence of "congenital hip dislocation without hip dysplasia" is lower than the prevalence of "congenital hip dislocation" in reports prior to the 1999-2017 Annual Report.
- Changed the category "infants and fetuses with any monitored birth defect" to "infants and fetuses with regular reportable birth defects." A small number of the birth defect diagnoses we monitor are designated as "conditional inclusion" birth defects; the rest are called "regular reportable" defects. Conditional inclusion defects are only collected if the infant or fetus also has a regular reportable birth defect. Occasionally, a birth defect diagnosis is changed from being a regular reportable defect to a conditional inclusion. For example, we changed the diagnosis plagiocephaly from a regular reportable birth defect to a conditional inclusion defect. The new category "infants and fetuses with regular reportable birth defects" counts the number of infants and fetuses with one or more of the regular reportable birth defect diagnoses. As such, it will be responsive to changes when diagnoses change from regular reportable to conditional inclusion. As a result, the prevalence of "infants and fetuses with regular reportable birth defects" is slightly lower than the prevalence of "infants and fetuses with any monitored birth defect" in reports prior to the 1999-2017 Annual Report.

In 2021 and 2023, BDESB changed methodology and procedures for the collection of patent ductus arteriosus. This change has impacted prevalence estimates for this defect. As a result, the prevalence of this defect has decreased over recent years.

Limitations of these Data

These data are subject to several limitations. First, the registry only includes birth defects diagnosed within one year after delivery (except for fetal alcohol syndrome), so birth defects detected after the first birthday and diagnoses that are refined after the first birthday are not in the registry. Second, we do not capture diagnoses that are made outside of Texas or in Texas facilities that our staff does not access at this time, such as prenatal diagnostic facilities, private physicians' offices, and military facilities. Third, data are collected from medical records and as such are subject to differences in clinical practice.

Acknowledgements

The Department of State Health Services continues to work on behalf of children and families affected by birth defects in Texas and recognizes the critical contributions of families who have participated in research that one day will eliminate these conditions. We further acknowledge the dedicated efforts of the birth defects surveillance staff, who collect information on birth defects across the state.

The work of the Texas Birth Defects Epidemiology and Surveillance Branch is supported by Maternal and Child Health Block Grant funding from the Texas Department of State Health Services. Activities have also been supported in part by the following Cooperative Agreements from the Centers for Disease Control and Prevention: NU50DD004942 from February 1, 2016, through January 31, 2022; NU50DD000036 from August 1, 2016, through July 31, 2018; and NU50DD000102 beginning May 1, 2021.

Reference

1. INTERGROWTH-21st (the International Fetal and Newborn Growth Consortium for the 21st Century) international standards for newborn weight, length, and head circumference by gestational age and sex. Available at: https://intergrowth21.tghn.org/articles/international-standards-newborn-weight-length-and-head-circumference-gestational-age-and-sex-newborn-cross-sectional-study-inte/.

Texas Birth Defects Registry (TBDR) Annual Report
Table 1. Overall Prevalence of Selected Birth Defects, Texas, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	2,106	2.49	2.39 – 2.60
Spina bifida (without anencephaly)	3,138	3.72	3.59 – 3.85
Encephalocele	814	0.96	0.90 – 1.03
Microcephaly, severe (head circ. <3rd percentile)	4,287	5.08	4.92 – 5.23
Holoprosencephaly	885	1.05	0.98 – 1.12
Hydrocephaly (without spina bifida)	6,802	8.05	7.86 – 8.25
Eye and Ear			
Anophthalmia	246	0.29	0.25 – 0.33
Microphthalmia	2,308	2.73	2.62 – 2.84
Cataract	1,630	1.93	1.84 – 2.02
Anotia or microtia	3,003	3.56	3.43 – 3.68
Cardiac and Circulatory			
Common truncus	645	0.76	0.70 – 0.82
Transposition of the great vessels	2,842	3.37	3.24 – 3.49
Double outlet right ventricle	1,948	2.31	2.20 – 2.41
Tetralogy of Fallot	3,337	3.95	3.82 – 4.09
Ventricular septal defect	51,547	61.04	60.51 – 61.57
Atrial septal defect	59,996	71.04	70.48 – 71.61
Atrioventricular septal defect (endocardial cushion defect)	3,681	4.36	4.22 – 4.50
Pulmonary valve atresia or stenosis	8,400	9.95	9.73 – 10.16
Tricuspid valve atresia or stenosis	1,591	1.88	1.79 – 1.98
Ebstein anomaly	639	0.76	0.70 – 0.82
Aortic valve stenosis	2,030	2.40	2.30 – 2.51
Hypoplastic left heart syndrome	1,897	2.25	2.15 – 2.35
Patent ductus arteriosus	49,273	58.35	57.83 – 58.86
Coarctation of the aorta	4,468	5.29	5.14 – 5.45
Respiratory			
Choanal atresia or stenosis	1,076	1.27	1.20 – 1.35
Agenesis, aplasia, or hypoplasia of the lung	2,516	2.98	2.86 – 3.10
Oral Clefts			
Cleft palate alone (without cleft lip)	5,013	5.94	5.77 – 6.10
Cleft lip (with or without cleft palate)	9,075	10.75	10.53 – 10.97
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	1,846	2.19	2.09 – 2.29
Pyloric stenosis	13,588	16.09	15.82 – 16.36
Stenosis or atresia of the small intestine	2,875	3.40	3.28 – 3.53
Stenosis or atresia of large intestine, rectum, anal canal	4,495	5.32	5.17 – 5.48
Hirschsprung disease	1,213	1.44	1.36 – 1.52
Biliary atresia	603	0.71	0.66 – 0.77

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	26,799	62.09	61.35 – 62.84
Epispadias	820	0.97	0.90 – 1.04
Renal agenesis or dysgenesis	5,468	6.47	6.30 – 6.65
Bladder exstrophy	148	0.18	0.15 – 0.20
Musculoskeletal			
Congenital hip dislocation (without hip dysplasia)	2,122	2.51	2.41 – 2.62
Talipes equinovarus (clubfoot)	14,014	16.59	16.32 – 16.87
Reduction defects of the upper limbs	3,501	4.15	4.01 – 4.28
Reduction defects of the lower limbs	1,658	1.96	1.87 – 2.06
Craniosynostosis	4,716	5.58	5.43 – 5.74
Achondroplasia	307	0.36	0.32 – 0.40
Diaphragmatic hernia	2,359	2.79	2.68 – 2.91
Omphalocele	1,821	2.16	2.06 – 2.26
Gastroschisis	4,316	5.11	4.96 – 5.26
Chromosomal			
Trisomy 21 (Down syndrome)	11,694	13.85	13.60 – 14.10
Trisomy 13 (Patau syndrome)	970	1.15	1.08 – 1.22
Trisomy 18 (Edwards syndrome)	2,125	2.52	2.41 – 2.62
Infants & fetuses with regular reportable birth defects	419,733	497.03	495.53 – 498.54

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report
Table 2. Prevalence of Selected Birth Defects by Year, Texas, 1999–2020

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System				
Anencephaly	1999	123	3.52	2.90 – 4.15
	2000	100	2.75	2.24 – 3.35
	2001	94	2.57	2.08 – 3.15
	2002	98	2.63	2.14 – 3.21
	2003	98	2.60	2.11 – 3.16
	2004	87	2.28	1.83 – 2.81
	2005	85	2.20	1.76 – 2.73
	2006	90	2.25	1.81 – 2.77
	2007	93	2.28	1.84 – 2.80
	2008	106	2.62	2.12 – 3.11
	2009	122	3.04	2.50 – 3.58
	2010	108	2.80	2.27 – 3.33
	2011	98	2.60	2.11 – 3.17
	2012	109	2.85	2.32 – 3.39
	2013	89	2.30	1.85 – 2.83
	2014	84	2.10	1.68 – 2.60
	2015	81	2.01	1.59 – 2.50
	2016	103	2.59	2.09 – 3.10
	2017	90	2.36	1.90 – 2.90
	2018	93	2.47	1.99 – 3.03
	2019	84	2.22	1.77 – 2.75
	2020	71	1.93	1.51 – 2.43
Spina bifida without anencephaly	1999	148	4.24	3.56 – 4.92
	2000	137	3.77	3.14 – 4.40
	2001	123	3.37	2.77 – 3.96
	2002	112	3.01	2.45 – 3.56
	2003	123	3.26	2.68 – 3.84
	2004	173	4.54	3.86 – 5.21
	2005	141	3.66	3.05 – 4.26
	2006	136	3.41	2.83 – 3.98
	2007	154	3.78	3.18 – 4.38
	2008	143	3.53	2.95 – 4.11
	2009	152	3.78	3.18 – 4.39
	2010	160	4.15	3.51 – 4.79
	2011	161	4.27	3.61 – 4.93
	2012	159	4.16	3.51 – 4.80
	2013	148	3.82	3.21 – 4.44
	2014	146	3.65	3.06 – 4.25
	2015	136	3.37	2.80 – 3.94

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2016	161	4.06	3.43 – 4.68
	2017	132	3.46	2.87 – 4.05
	2018	135	3.59	2.98 – 4.19
	2019	127	3.36	2.78 – 3.95
	2020	131	3.56	2.95 – 4.17
Encephalocele	1999	33	0.95	0.65 – 1.33
	2000	39	1.07	0.76 – 1.47
	2001	34	0.93	0.64 – 1.30
	2002	28	0.75	0.50 – 1.09
	2003	33	0.87	0.60 – 1.23
	2004	23	0.60	0.38 – 0.90
	2005	32	0.83	0.57 – 1.17
	2006	39	0.98	0.69 – 1.34
	2007	42	1.03	0.74 – 1.39
	2008	41	1.01	0.73 – 1.37
	2009	38	0.95	0.67 – 1.30
	2010	41	1.06	0.76 – 1.44
	2011	41	1.09	0.78 – 1.47
	2012	46	1.20	0.88 – 1.60
	2013	37	0.96	0.67 – 1.32
	2014	32	0.80	0.55 – 1.13
	2015	36	0.89	0.62 – 1.24
	2016	40	1.01	0.72 – 1.37
	2017	35	0.92	0.64 – 1.27
	2018	43	1.14	0.83 – 1.54
	2019	45	1.19	0.87 – 1.59
	2020	36	0.98	0.68 – 1.35
Microcephaly, severe (head circumference <3rd percentile)	1999	94	2.69	2.18 – 3.29
	2000	118	3.25	2.66 – 3.83
	2001	92	2.52	2.03 – 3.09
	2002	119	3.20	2.62 – 3.77
	2003	104	2.76	2.23 – 3.29
	2004	131	3.43	2.85 – 4.02
	2005	153	3.97	3.34 – 4.60
	2006	152	3.81	3.20 – 4.41
	2007	140	3.44	2.87 – 4.01
	2008	177	4.37	3.72 – 5.01
	2009	180	4.48	3.83 – 5.14
	2010	197	5.11	4.39 – 5.82
	2011	178	4.72	4.02 – 5.41
	2012	218	5.70	4.94 – 6.46
	2013	234	6.04	5.27 – 6.82
	2014	217	5.43	4.71 – 6.15

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2015	244	6.05	5.29 – 6.81
	2016	310	7.81	6.94 – 8.68
	2017	246	6.44	5.64 – 7.25
	2018	305	8.10	7.19 – 9.01
	2019	322	8.53	7.59 – 9.46
	2020	356	9.67	8.66 – 10.67
Holoprosencephaly	1999	41	1.17	0.84 – 1.59
	2000	38	1.05	0.74 – 1.44
	2001	46	1.26	0.92 – 1.68
	2002	51	1.37	1.02 – 1.80
	2003	45	1.19	0.87 – 1.60
	2004	37	0.97	0.68 – 1.34
	2005	41	1.06	0.76 – 1.44
	2006	46	1.15	0.84 – 1.54
	2007	54	1.33	1.00 – 1.73
	2008	38	0.94	0.66 – 1.29
	2009	31	0.77	0.52 – 1.10
	2010	36	0.93	0.65 – 1.29
	2011	35	0.93	0.65 – 1.29
	2012	43	1.12	0.81 – 1.51
	2013	37	0.96	0.67 – 1.32
	2014	41	1.03	0.74 – 1.39
	2015	37	0.92	0.65 – 1.26
	2016	38	0.96	0.68 – 1.31
	2017	32	0.84	0.57 – 1.18
	2018	44	1.17	0.85 – 1.57
	2019	36	0.95	0.67 – 1.32
	2020	38	1.03	0.73 – 1.42
Hydrocephaly without spina bifida	1999	295	8.45	7.48 – 9.41
	2000	264	7.27	6.39 – 8.14
	2001	234	6.41	5.59 – 7.23
	2002	251	6.74	5.91 – 7.57
	2003	249	6.60	5.78 – 7.42
	2004	265	6.95	6.11 – 7.78
	2005	234	6.07	5.29 – 6.85
	2006	270	6.76	5.96 – 7.57
	2007	309	7.58	6.74 – 8.43
	2008	296	7.30	6.47 – 8.14
	2009	302	7.52	6.67 – 8.37
	2010	298	7.73	6.85 – 8.60
	2011	311	8.24	7.33 – 9.16
	2012	339	8.86	7.92 – 9.81
	2013	330	8.52	7.60 – 9.44

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2014	360	9.01	8.08 – 9.94
	2015	338	8.38	7.48 – 9.27
	2016	376	9.47	8.51 – 10.43
	2017	388	10.16	9.15 – 11.17
	2018	368	9.77	8.78 – 10.77
	2019	357	9.45	8.47 – 10.43
	2020	368	9.99	8.97 – 11.01
Eye and Ear				
Anophthalmia	1999	12	0.34	0.18 – 0.60
	2000	11	0.30	0.15 – 0.54
	2001	12	0.33	0.17 – 0.57
	2002	11	0.30	0.15 – 0.53
	2003	12	0.32	0.16 – 0.56
	2004	10	0.26	0.13 – 0.48
	2005	14	0.36	0.20 – 0.61
	2006	17	0.43	0.25 – 0.68
	2007	13	0.32	0.17 – 0.55
	2008	9	0.22	0.10 – 0.42
	2009	13	0.32	0.17 – 0.55
	2010	13	0.34	0.18 – 0.58
	2011	19	0.50	0.30 – 0.79
	2012	7	0.18	0.07 – 0.38
	2013	10	0.26	0.12 – 0.48
	2014	6	0.15	0.06 – 0.33
	2015	8	0.20	0.09 – 0.39
	2016	9	0.23	0.10 – 0.43
	2017	8	0.21	0.09 – 0.41
	2018	11	0.29	0.15 – 0.52
	2019	9	0.24	0.11 – 0.45
	2020	12	0.33	0.17 – 0.57
Microphthalmia	1999	85	2.43	1.94 – 3.01
	2000	91	2.50	2.02 – 3.08
	2001	89	2.44	1.96 – 3.00
	2002	106	2.85	2.30 – 3.39
	2003	102	2.70	2.18 – 3.23
	2004	100	2.62	2.13 – 3.19
	2005	105	2.72	2.20 – 3.24
	2006	120	3.01	2.47 – 3.54
	2007	131	3.22	2.66 – 3.77
	2008	120	2.96	2.43 – 3.49
	2009	104	2.59	2.09 – 3.09
	2010	115	2.98	2.44 – 3.53
	2011	119	3.15	2.59 – 3.72

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2012	100	2.61	2.13 – 3.18
	2013	101	2.61	2.10 – 3.12
	2014	101	2.53	2.04 – 3.02
	2015	94	2.33	1.88 – 2.85
	2016	117	2.95	2.41 – 3.48
	2017	101	2.64	2.13 – 3.16
	2018	103	2.74	2.21 – 3.26
	2019	109	2.89	2.34 – 3.43
	2020	95	2.58	2.09 – 3.15
Cataract	1999	42	1.20	0.87 – 1.63
	2000	63	1.73	1.33 – 2.22
	2001	54	1.48	1.11 – 1.93
	2002	75	2.01	1.58 – 2.52
	2003	65	1.72	1.33 – 2.20
	2004	72	1.89	1.48 – 2.38
	2005	78	2.02	1.60 – 2.52
	2006	81	2.03	1.61 – 2.52
	2007	93	2.28	1.84 – 2.80
	2008	73	1.80	1.41 – 2.26
	2009	75	1.87	1.47 – 2.34
	2010	80	2.07	1.64 – 2.58
	2011	85	2.25	1.80 – 2.79
	2012	63	1.65	1.27 – 2.11
	2013	64	1.65	1.27 – 2.11
	2014	76	1.90	1.50 – 2.38
	2015	78	1.93	1.53 – 2.41
	2016	99	2.49	2.03 – 3.04
	2017	80	2.09	1.66 – 2.61
	2018	83	2.20	1.76 – 2.73
	2019	80	2.12	1.68 – 2.64
	2020	71	1.93	1.51 – 2.43
Anotia or microtia	1999	100	2.86	2.33 – 3.48
	2000	101	2.78	2.24 – 3.32
	2001	106	2.90	2.35 – 3.46
	2002	107	2.87	2.33 – 3.42
	2003	102	2.70	2.18 – 3.23
	2004	130	3.41	2.82 – 3.99
	2005	116	3.01	2.46 – 3.56
	2006	134	3.36	2.79 – 3.92
	2007	126	3.09	2.55 – 3.63
	2008	164	4.05	3.43 – 4.67
	2009	138	3.44	2.86 – 4.01
	2010	143	3.71	3.10 – 4.31

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2011	136	3.60	3.00 – 4.21
	2012	128	3.35	2.77 – 3.93
	2013	139	3.59	2.99 – 4.19
	2014	147	3.68	3.08 – 4.27
	2015	161	3.99	3.37 – 4.61
	2016	171	4.31	3.66 – 4.95
	2017	155	4.06	3.42 – 4.70
	2018	161	4.28	3.62 – 4.94
	2019	166	4.39	3.73 – 5.06
	2020	172	4.67	3.97 – 5.37
Cardiac and Circulatory				
Common truncus	1999	17	0.49	0.28 – 0.78
	2000	27	0.74	0.49 – 1.08
	2001	26	0.71	0.47 – 1.04
	2002	29	0.78	0.52 – 1.12
	2003	28	0.74	0.49 – 1.07
	2004	31	0.81	0.55 – 1.15
	2005	24	0.62	0.40 – 0.93
	2006	28	0.70	0.47 – 1.01
	2007	29	0.71	0.48 – 1.02
	2008	44	1.09	0.79 – 1.46
	2009	24	0.60	0.38 – 0.89
	2010	31	0.80	0.55 – 1.14
	2011	30	0.80	0.54 – 1.14
	2012	39	1.02	0.73 – 1.39
	2013	34	0.88	0.61 – 1.23
	2014	31	0.78	0.53 – 1.10
	2015	30	0.74	0.50 – 1.06
	2016	30	0.76	0.51 – 1.08
	2017	24	0.63	0.40 – 0.94
	2018	34	0.90	0.63 – 1.26
	2019	28	0.74	0.49 – 1.07
	2020	27	0.73	0.48 – 1.07
Transposition of the great vessels	1999	132	3.78	3.14 – 4.43
	2000	118	3.25	2.66 – 3.83
	2001	138	3.78	3.15 – 4.41
	2002	103	2.77	2.23 – 3.30
	2003	131	3.47	2.88 – 4.07
	2004	128	3.36	2.77 – 3.94
	2005	123	3.19	2.63 – 3.75
	2006	149	3.73	3.13 – 4.33
	2007	147	3.61	3.02 – 4.19
	2008	151	3.73	3.13 – 4.32

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2009	148	3.69	3.09 – 4.28
	2010	150	3.89	3.27 – 4.51
	2011	125	3.31	2.73 – 3.89
	2012	124	3.24	2.67 – 3.81
	2013	150	3.87	3.25 – 4.49
	2014	142	3.55	2.97 – 4.14
	2015	127	3.15	2.60 – 3.70
	2016	117	2.95	2.41 – 3.48
	2017	103	2.70	2.18 – 3.22
	2018	119	3.16	2.59 – 3.73
	2019	105	2.78	2.25 – 3.31
	2020	112	3.04	2.48 – 3.60
Double outlet right ventricle	1999	65	1.86	1.44 – 2.37
	2000	58	1.60	1.21 – 2.06
	2001	82	2.25	1.79 – 2.79
	2002	74	1.99	1.56 – 2.49
	2003	78	2.07	1.63 – 2.58
	2004	76	1.99	1.57 – 2.49
	2005	76	1.97	1.55 – 2.47
	2006	74	1.85	1.46 – 2.33
	2007	86	2.11	1.69 – 2.61
	2008	102	2.52	2.03 – 3.01
	2009	107	2.66	2.16 – 3.17
	2010	81	2.10	1.67 – 2.61
	2011	91	2.41	1.94 – 2.96
	2012	85	2.22	1.78 – 2.75
	2013	120	3.10	2.55 – 3.65
	2014	98	2.45	1.99 – 2.99
	2015	90	2.23	1.79 – 2.74
	2016	103	2.59	2.09 – 3.10
	2017	86	2.25	1.80 – 2.78
	2018	97	2.58	2.09 – 3.14
	2019	112	2.97	2.42 – 3.51
	2020	107	2.91	2.35 – 3.46
Tetralogy of Fallot	1999	110	3.15	2.56 – 3.74
	2000	104	2.86	2.31 – 3.41
	2001	127	3.48	2.87 – 4.08
	2002	132	3.54	2.94 – 4.15
	2003	144	3.82	3.19 – 4.44
	2004	110	2.88	2.34 – 3.42
	2005	152	3.94	3.32 – 4.57
	2006	152	3.81	3.20 – 4.41
	2007	136	3.34	2.78 – 3.90

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2008	180	4.44	3.79 – 5.09
	2009	149	3.71	3.11 – 4.31
	2010	141	3.66	3.05 – 4.26
	2011	164	4.35	3.68 – 5.01
	2012	179	4.68	3.99 – 5.37
	2013	155	4.00	3.37 – 4.63
	2014	183	4.58	3.92 – 5.24
	2015	173	4.29	3.65 – 4.93
	2016	198	4.99	4.29 – 5.68
	2017	161	4.22	3.56 – 4.87
	2018	173	4.59	3.91 – 5.28
	2019	170	4.50	3.82 – 5.18
	2020	144	3.91	3.27 – 4.55
Ventricular septal defect	1999	1,425	40.81	38.69 – 42.93
	2000	1,557	42.85	40.73 – 44.98
	2001	1,673	45.82	43.63 – 48.02
	2002	1,823	48.96	46.71 – 51.20
	2003	1,847	48.94	46.71 – 51.18
	2004	1,969	51.62	49.34 – 53.90
	2005	2,205	57.19	54.81 – 59.58
	2006	2,275	56.97	54.63 – 59.31
	2007	2,485	60.99	58.59 – 63.39
	2008	2,624	64.75	62.27 – 67.23
	2009	2,707	67.41	64.87 – 69.94
	2010	2,607	67.58	64.99 – 70.18
	2011	2,551	67.62	64.99 – 70.24
	2012	2,520	65.89	63.32 – 68.47
	2013	2,514	64.94	62.40 – 67.48
	2014	2,629	65.81	63.29 – 68.33
	2015	2,785	69.03	66.47 – 71.60
	2016	2,711	68.29	65.72 – 70.86
	2017	2,672	69.97	67.32 – 72.62
	2018	2,681	71.21	68.51 – 73.90
	2019	2,642	69.95	67.28 – 72.62
	2020	2,645	71.81	69.08 – 74.55
Atrial septal defect	1999	1,377	39.44	37.35 – 41.52
	2000	1,424	39.19	37.16 – 41.23
	2001	1,523	41.72	39.62 – 43.81
	2002	1,621	43.53	41.41 – 45.65
	2003	1,809	47.94	45.73 – 50.15
	2004	2,135	55.97	53.60 – 58.35
	2005	2,500	64.84	62.30 – 67.39
	2006	2,469	61.83	59.39 – 64.27

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2007	2,463	60.45	58.06 – 62.84
	2008	2,808	69.29	66.73 – 71.85
	2009	2,707	67.41	64.87 – 69.94
	2010	2,962	76.79	74.02 – 79.55
	2011	3,259	86.38	83.42 – 89.35
	2012	3,223	84.28	81.37 – 87.18
	2013	3,247	83.88	80.99 – 86.76
	2014	3,432	85.91	83.04 – 88.79
	2015	3,655	90.60	87.66 – 93.53
	2016	3,716	93.60	90.59 – 96.61
	2017	3,350	87.72	84.75 – 90.70
	2018	3,326	88.34	85.34 – 91.34
	2019	3,404	90.12	87.09 – 93.15
	2020	3,586	97.36	94.18 – 100.55
Atrioventricular septal defect (endocardial cushion defect)	1999	138	3.95	3.29 – 4.61
	2000	152	4.18	3.52 – 4.85
	2001	159	4.36	3.68 – 5.03
	2002	151	4.06	3.41 – 4.70
	2003	145	3.84	3.22 – 4.47
	2004	152	3.98	3.35 – 4.62
	2005	155	4.02	3.39 – 4.65
	2006	181	4.53	3.87 – 5.19
	2007	157	3.85	3.25 – 4.46
	2008	198	4.89	4.21 – 5.57
	2009	184	4.58	3.92 – 5.24
	2010	167	4.33	3.67 – 4.99
	2011	163	4.32	3.66 – 4.98
	2012	166	4.34	3.68 – 5.00
	2013	191	4.93	4.23 – 5.63
	2014	187	4.68	4.01 – 5.35
	2015	184	4.56	3.90 – 5.22
	2016	182	4.58	3.92 – 5.25
	2017	186	4.87	4.17 – 5.57
	2018	168	4.46	3.79 – 5.14
	2019	152	4.02	3.38 – 4.66
	2020	163	4.43	3.75 – 5.10
Pulmonary valve atresia or stenosis	1999	220	6.30	5.47 – 7.13
	2000	235	6.47	5.64 – 7.30
	2001	272	7.45	6.56 – 8.34
	2002	249	6.69	5.86 – 7.52
	2003	319	8.45	7.53 – 9.38
	2004	344	9.02	8.07 – 9.97
	2005	346	8.97	8.03 – 9.92

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2006	347	8.69	7.78 – 9.60
	2007	403	9.89	8.93 – 10.86
	2008	467	11.52	10.48 – 12.57
	2009	416	10.36	9.36 – 11.35
	2010	429	11.12	10.07 – 12.17
	2011	464	12.30	11.18 – 13.42
	2012	437	11.43	10.36 – 12.50
	2013	410	10.59	9.57 – 11.62
	2014	433	10.84	9.82 – 11.86
	2015	403	9.99	9.01 – 10.96
	2016	425	10.71	9.69 – 11.72
	2017	449	11.76	10.67 – 12.85
	2018	455	12.08	10.97 – 13.20
	2019	422	11.17	10.11 – 12.24
	2020	455	12.35	11.22 – 13.49
Tricuspid valve atresia or stenosis	1999	58	1.66	1.26 – 2.15
	2000	41	1.13	0.81 – 1.53
	2001	57	1.56	1.18 – 2.02
	2002	55	1.48	1.11 – 1.92
	2003	65	1.72	1.33 – 2.20
	2004	68	1.78	1.38 – 2.26
	2005	60	1.56	1.19 – 2.00
	2006	73	1.83	1.43 – 2.30
	2007	73	1.79	1.40 – 2.25
	2008	68	1.68	1.30 – 2.13
	2009	64	1.59	1.23 – 2.04
	2010	79	2.05	1.62 – 2.55
	2011	75	1.99	1.56 – 2.49
	2012	64	1.67	1.29 – 2.14
	2013	78	2.01	1.59 – 2.51
	2014	88	2.20	1.77 – 2.71
	2015	84	2.08	1.66 – 2.58
	2016	72	1.81	1.42 – 2.28
	2017	106	2.78	2.25 – 3.30
	2018	95	2.52	2.04 – 3.08
	2019	73	1.93	1.51 – 2.43
	2020	95	2.58	2.09 – 3.15
Ebstein anomaly	1999	24	0.69	0.44 – 1.02
	2000	27	0.74	0.49 – 1.08
	2001	19	0.52	0.31 – 0.81
	2002	23	0.62	0.39 – 0.93
	2003	31	0.82	0.56 – 1.17
	2004	41	1.07	0.77 – 1.46

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2005	23	0.60	0.38 – 0.90
	2006	25	0.63	0.41 – 0.92
	2007	24	0.59	0.38 – 0.88
	2008	29	0.72	0.48 – 1.03
	2009	23	0.57	0.36 – 0.86
	2010	30	0.78	0.52 – 1.11
	2011	31	0.82	0.56 – 1.17
	2012	29	0.76	0.51 – 1.09
	2013	33	0.85	0.59 – 1.20
	2014	34	0.85	0.59 – 1.19
	2015	28	0.69	0.46 – 1.00
	2016	22	0.55	0.35 – 0.84
	2017	39	1.02	0.73 – 1.40
	2018	39	1.04	0.74 – 1.42
	2019	39	1.03	0.73 – 1.41
	2020	26	0.71	0.46 – 1.03
Aortic valve stenosis	1999	85	2.43	1.94 – 3.01
	2000	77	2.12	1.67 – 2.65
	2001	84	2.30	1.84 – 2.85
	2002	90	2.42	1.94 – 2.97
	2003	95	2.52	2.04 – 3.08
	2004	99	2.60	2.11 – 3.16
	2005	76	1.97	1.55 – 2.47
	2006	92	2.30	1.86 – 2.83
	2007	89	2.18	1.75 – 2.69
	2008	110	2.71	2.21 – 3.22
	2009	97	2.42	1.96 – 2.95
	2010	104	2.70	2.18 – 3.21
	2011	110	2.92	2.37 – 3.46
	2012	111	2.90	2.36 – 3.44
	2013	85	2.20	1.75 – 2.72
	2014	101	2.53	2.04 – 3.02
	2015	97	2.40	1.95 – 2.93
	2016	83	2.09	1.67 – 2.59
	2017	70	1.83	1.43 – 2.32
	2018	103	2.74	2.21 – 3.26
	2019	92	2.44	1.96 – 2.99
	2020	80	2.17	1.72 – 2.70
Hypoplastic left heart syndrome	1999	66	1.89	1.46 – 2.40
	2000	81	2.23	1.77 – 2.77
	2001	67	1.84	1.42 – 2.33
	2002	90	2.42	1.94 – 2.97
	2003	74	1.96	1.54 – 2.46

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2004	83	2.18	1.73 – 2.70
	2005	77	2.00	1.58 – 2.50
	2006	87	2.18	1.75 – 2.69
	2007	80	1.96	1.56 – 2.44
	2008	89	2.20	1.76 – 2.70
	2009	86	2.14	1.71 – 2.64
	2010	93	2.41	1.95 – 2.95
	2011	86	2.28	1.82 – 2.82
	2012	104	2.72	2.20 – 3.24
	2013	99	2.56	2.08 – 3.11
	2014	89	2.23	1.79 – 2.74
	2015	107	2.65	2.15 – 3.15
	2016	93	2.34	1.89 – 2.87
	2017	84	2.20	1.75 – 2.72
	2018	91	2.42	1.95 – 2.97
	2019	96	2.54	2.06 – 3.10
	2020	75	2.04	1.60 – 2.55
Patent ductus arteriosus	1999	1,509	43.22	41.04 – 45.40
	2000	1,498	41.23	39.14 – 43.32
	2001	1,605	43.96	41.81 – 46.11
	2002	1,641	44.07	41.94 – 46.20
	2003	1,799	47.67	45.47 – 49.87
	2004	2,048	53.69	51.37 – 56.02
	2005	2,011	52.16	49.88 – 54.44
	2006	2,182	54.64	52.35 – 56.94
	2007	2,141	52.55	50.32 – 54.77
	2008	2,513	62.01	59.59 – 64.44
	2009	2,663	66.31	63.79 – 68.83
	2010	2,688	69.68	67.05 – 72.32
	2011	2,686	71.19	68.50 – 73.89
	2012	2,706	70.76	68.09 – 73.42
	2013	2,862	73.93	71.22 – 76.64
	2014	2,886	72.24	69.61 – 74.88
	2015	2,947	73.05	70.41 – 75.68
	2016	2,854	71.89	69.25 – 74.53
	2017	2,516	65.89	63.31 – 68.46
	2018	2,377	63.13	60.60 – 65.67
	2019	2,023	53.56	51.23 – 55.89
	2020	1,118	30.35	28.57 – 32.13
Coarctation of the aorta	1999	152	4.35	3.66 – 5.05
	2000	147	4.05	3.39 – 4.70
	2001	154	4.22	3.55 – 4.88
	2002	195	5.24	4.50 – 5.97

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2003	196	5.19	4.47 – 5.92
	2004	179	4.69	4.01 – 5.38
	2005	201	5.21	4.49 – 5.93
	2006	223	5.58	4.85 – 6.32
	2007	193	4.74	4.07 – 5.41
	2008	210	5.18	4.48 – 5.88
	2009	205	5.10	4.41 – 5.80
	2010	211	5.47	4.73 – 6.21
	2011	210	5.57	4.81 – 6.32
	2012	219	5.73	4.97 – 6.48
	2013	233	6.02	5.25 – 6.79
	2014	239	5.98	5.22 – 6.74
	2015	193	4.78	4.11 – 5.46
	2016	215	5.42	4.69 – 6.14
	2017	226	5.92	5.15 – 6.69
	2018	251	6.67	5.84 – 7.49
	2019	213	5.64	4.88 – 6.40
	2020	203	5.51	4.75 – 6.27
Respiratory				
Choanal atresia or stenosis	1999	43	1.23	0.89 – 1.66
	2000	48	1.32	0.97 – 1.75
	2001	42	1.15	0.83 – 1.55
	2002	45	1.21	0.88 – 1.62
	2003	38	1.01	0.71 – 1.38
	2004	32	0.84	0.57 – 1.18
	2005	43	1.12	0.81 – 1.50
	2006	59	1.48	1.12 – 1.91
	2007	44	1.08	0.78 – 1.45
	2008	55	1.36	1.02 – 1.77
	2009	56	1.39	1.05 – 1.81
	2010	50	1.30	0.96 – 1.71
	2011	52	1.38	1.03 – 1.81
	2012	51	1.33	0.99 – 1.75
	2013	55	1.42	1.07 – 1.85
	2014	63	1.58	1.21 – 2.02
	2015	58	1.44	1.09 – 1.86
	2016	33	0.83	0.57 – 1.17
	2017	60	1.57	1.20 – 2.02
	2018	43	1.14	0.83 – 1.54
	2019	57	1.51	1.14 – 1.96
	2020	49	1.33	0.98 – 1.76
Agenesis, aplasia, or hypoplasia of the lung	1999	186	5.33	4.56 – 6.09
	2000	157	4.32	3.65 – 5.00

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2001	157	4.30	3.63 – 4.97
	2002	135	3.63	3.01 – 4.24
	2003	122	3.23	2.66 – 3.81
	2004	99	2.60	2.11 – 3.16
	2005	110	2.85	2.32 – 3.39
	2006	110	2.75	2.24 – 3.27
	2007	104	2.55	2.06 – 3.04
	2008	94	2.32	1.87 – 2.84
	2009	115	2.86	2.34 – 3.39
	2010	114	2.96	2.41 – 3.50
	2011	105	2.78	2.25 – 3.32
	2012	90	2.35	1.89 – 2.89
	2013	117	3.02	2.47 – 3.57
	2014	103	2.58	2.08 – 3.08
	2015	116	2.88	2.35 – 3.40
	2016	114	2.87	2.34 – 3.40
	2017	110	2.88	2.34 – 3.42
	2018	103	2.74	2.21 – 3.26
	2019	76	2.01	1.59 – 2.52
	2020	79	2.14	1.70 – 2.67
Oral Clefts				
Cleft palate alone (without cleft lip)	1999	213	6.10	5.28 – 6.92
	2000	227	6.25	5.44 – 7.06
	2001	216	5.92	5.13 – 6.71
	2002	196	5.26	4.53 – 6.00
	2003	202	5.35	4.61 – 6.09
	2004	210	5.51	4.76 – 6.25
	2005	254	6.59	5.78 – 7.40
	2006	222	5.56	4.83 – 6.29
	2007	239	5.87	5.12 – 6.61
	2008	264	6.51	5.73 – 7.30
	2009	257	6.40	5.62 – 7.18
	2010	271	7.03	6.19 – 7.86
	2011	211	5.59	4.84 – 6.35
	2012	197	5.15	4.43 – 5.87
	2013	238	6.15	5.37 – 6.93
	2014	221	5.53	4.80 – 6.26
	2015	243	6.02	5.27 – 6.78
	2016	227	5.72	4.97 – 6.46
	2017	226	5.92	5.15 – 6.69
	2018	251	6.67	5.84 – 7.49
	2019	213	5.64	4.88 – 6.40
	2020	215	5.84	5.06 – 6.62

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Cleft lip with or without cleft palate	1999	372	10.65	9.57 – 11.74
	2000	401	11.04	9.96 – 12.12
	2001	401	10.98	9.91 – 12.06
	2002	389	10.45	9.41 – 11.48
	2003	390	10.33	9.31 – 11.36
	2004	452	11.85	10.76 – 12.94
	2005	430	11.15	10.10 – 12.21
	2006	447	11.19	10.16 – 12.23
	2007	434	10.65	9.65 – 11.65
	2008	441	10.88	9.87 – 11.90
	2009	378	9.41	8.46 – 10.36
	2010	394	10.21	9.21 – 11.22
	2011	454	12.03	10.93 – 13.14
	2012	409	10.69	9.66 – 11.73
	2013	388	10.02	9.03 – 11.02
	2014	437	10.94	9.91 – 11.96
	2015	445	11.03	10.01 – 12.06
	2016	413	10.40	9.40 – 11.41
	2017	375	9.82	8.83 – 10.81
	2018	455	12.08	10.97 – 13.20
	2019	388	10.27	9.25 – 11.29
	2020	382	10.37	9.33 – 11.41
Gastrointestinal				
Tracheoesophageal fistula/ esophageal atresia	1999	78	2.23	1.77 – 2.79
	2000	72	1.98	1.55 – 2.50
	2001	72	1.97	1.54 – 2.48
	2002	86	2.31	1.85 – 2.85
	2003	78	2.07	1.63 – 2.58
	2004	66	1.73	1.34 – 2.20
	2005	79	2.05	1.62 – 2.55
	2006	81	2.03	1.61 – 2.52
	2007	88	2.16	1.73 – 2.66
	2008	78	1.92	1.52 – 2.40
	2009	89	2.22	1.78 – 2.73
	2010	76	1.97	1.55 – 2.47
	2011	89	2.36	1.89 – 2.90
	2012	93	2.43	1.96 – 2.98
	2013	99	2.56	2.08 – 3.11
	2014	90	2.25	1.81 – 2.77
	2015	89	2.21	1.77 – 2.71
	2016	97	2.44	1.98 – 2.98
	2017	89	2.33	1.87 – 2.87
	2018	78	2.07	1.64 – 2.59

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2019	86	2.28	1.82 – 2.81
	2020	93	2.52	2.04 – 3.09
Pyloric stenosis	1999	644	18.44	17.02 – 19.87
	2000	752	20.70	19.22 – 22.18
	2001	719	19.69	18.25 – 21.13
	2002	645	17.32	15.98 – 18.66
	2003	585	15.50	14.25 – 16.76
	2004	777	20.37	18.94 – 21.80
	2005	693	17.97	16.64 – 19.31
	2006	980	24.54	23.01 – 26.08
	2007	917	22.51	21.05 – 23.96
	2008	715	17.64	16.35 – 18.94
	2009	630	15.69	14.46 – 16.91
	2010	576	14.93	13.71 – 16.15
	2011	543	14.39	13.18 – 15.60
	2012	449	11.74	10.65 – 12.83
	2013	460	11.88	10.80 – 12.97
	2014	538	13.47	12.33 – 14.61
	2015	499	12.37	11.28 – 13.45
	2016	543	13.68	12.53 – 14.83
	2017	422	11.05	10.00 – 12.11
	2018	553	14.69	13.46 – 15.91
	2019	501	13.26	12.10 – 14.43
	2020	447	12.14	11.01 – 13.26
Stenosis or atresia of the small intestine	1999	92	2.63	2.12 – 3.23
	2000	114	3.14	2.56 – 3.71
	2001	130	3.56	2.95 – 4.17
	2002	111	2.98	2.43 – 3.54
	2003	96	2.54	2.06 – 3.11
	2004	126	3.30	2.73 – 3.88
	2005	113	2.93	2.39 – 3.47
	2006	132	3.31	2.74 – 3.87
	2007	152	3.73	3.14 – 4.32
	2008	147	3.63	3.04 – 4.21
	2009	139	3.46	2.89 – 4.04
	2010	146	3.78	3.17 – 4.40
	2011	129	3.42	2.83 – 4.01
	2012	125	3.27	2.70 – 3.84
	2013	138	3.56	2.97 – 4.16
	2014	145	3.63	3.04 – 4.22
	2015	149	3.69	3.10 – 4.29
	2016	129	3.25	2.69 – 3.81
	2017	150	3.93	3.30 – 4.56

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2018	151	4.01	3.37 – 4.65
	2019	142	3.76	3.14 – 4.38
	2020	119	3.23	2.65 – 3.81
Stenosis or atresia of large intestine, rectum, or anal canal	1999	192	5.50	4.72 – 6.28
	2000	164	4.51	3.82 – 5.20
	2001	191	5.23	4.49 – 5.97
	2002	201	5.40	4.65 – 6.14
	2003	212	5.62	4.86 – 6.37
	2004	192	5.03	4.32 – 5.75
	2005	213	5.52	4.78 – 6.27
	2006	210	5.26	4.55 – 5.97
	2007	213	5.23	4.53 – 5.93
	2008	221	5.45	4.73 – 6.17
	2009	222	5.53	4.80 – 6.26
	2010	201	5.21	4.49 – 5.93
	2011	209	5.54	4.79 – 6.29
	2012	201	5.26	4.53 – 5.98
	2013	210	5.42	4.69 – 6.16
	2014	218	5.46	4.73 – 6.18
	2015	199	4.93	4.25 – 5.62
	2016	211	5.31	4.60 – 6.03
	2017	208	5.45	4.71 – 6.19
	2018	213	5.66	4.90 – 6.42
	2019	200	5.30	4.56 – 6.03
	2020	194	5.27	4.53 – 6.01
Hirschsprung disease	1999	39	1.12	0.79 – 1.53
	2000	47	1.29	0.95 – 1.72
	2001	42	1.15	0.83 – 1.55
	2002	44	1.18	0.86 – 1.59
	2003	44	1.17	0.85 – 1.57
	2004	52	1.36	1.02 – 1.79
	2005	57	1.48	1.12 – 1.92
	2006	48	1.20	0.89 – 1.59
	2007	67	1.64	1.27 – 2.09
	2008	63	1.55	1.19 – 1.99
	2009	50	1.25	0.92 – 1.64
	2010	56	1.45	1.10 – 1.89
	2011	62	1.64	1.26 – 2.11
	2012	55	1.44	1.08 – 1.87
	2013	59	1.52	1.16 – 1.97
	2014	57	1.43	1.08 – 1.85
	2015	74	1.83	1.44 – 2.30
	2016	71	1.79	1.40 – 2.26

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2017	51	1.34	0.99 – 1.76
	2018	62	1.65	1.26 – 2.11
	2019	58	1.54	1.17 – 1.99
	2020	55	1.49	1.12 – 1.94
Biliary atresia	1999	27	0.77	0.51 – 1.13
	2000	28	0.77	0.51 – 1.11
	2001	24	0.66	0.42 – 0.98
	2002	24	0.64	0.41 – 0.96
	2003	31	0.82	0.56 – 1.17
	2004	28	0.73	0.49 – 1.06
	2005	26	0.67	0.44 – 0.99
	2006	33	0.83	0.57 – 1.16
	2007	30	0.74	0.50 – 1.05
	2008	26	0.64	0.42 – 0.94
	2009	33	0.82	0.57 – 1.15
	2010	27	0.70	0.46 – 1.02
	2011	30	0.80	0.54 – 1.14
	2012	25	0.65	0.42 – 0.96
	2013	23	0.59	0.38 – 0.89
	2014	21	0.53	0.33 – 0.80
	2015	33	0.82	0.56 – 1.15
	2016	29	0.73	0.49 – 1.05
	2017	31	0.81	0.55 – 1.15
	2018	22	0.58	0.37 – 0.88
	2019	24	0.64	0.41 – 0.95
	2020	28	0.76	0.51 – 1.10
Genitourinary				
Hypospadias (among males)	1999	1,018	57.05	53.54 – 60.55
	2000	1,032	55.61	52.21 – 59.00
	2001	979	52.42	49.13 – 55.70
	2002	987	51.90	48.67 – 55.14
	2003	1,009	52.39	49.16 – 55.63
	2004	1,041	53.38	50.14 – 56.62
	2005	1,131	57.27	53.93 – 60.61
	2006	1,102	54.01	50.82 – 57.20
	2007	1,147	55.09	51.90 – 58.27
	2008	1,210	58.31	55.03 – 61.60
	2009	1,271	62.04	58.63 – 65.45
	2010	1,259	63.94	60.41 – 67.47
	2011	1,230	63.81	60.24 – 67.37
	2012	1,238	63.32	59.79 – 66.84
	2013	1,362	68.75	65.10 – 72.40
	2014	1,484	72.57	68.87 – 76.26

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2015	1,400	67.97	64.41 – 71.53
	2016	1,511	74.50	70.75 – 78.26
	2017	1,421	72.92	69.13 – 76.71
	2018	1,461	76.00	72.10 – 79.90
	2019	1,267	65.64	62.02 – 69.25
	2020	1,239	65.71	62.05 – 69.37
Epispadias	1999	21	0.60	0.37 – 0.92
	2000	32	0.88	0.60 – 1.24
	2001	29	0.79	0.53 – 1.14
	2002	22	0.59	0.37 – 0.89
	2003	35	0.93	0.65 – 1.29
	2004	31	0.81	0.55 – 1.15
	2005	27	0.70	0.46 – 1.02
	2006	42	1.05	0.76 – 1.42
	2007	39	0.96	0.68 – 1.31
	2008	40	0.99	0.71 – 1.34
	2009	41	1.02	0.73 – 1.38
	2010	44	1.14	0.83 – 1.53
	2011	39	1.03	0.74 – 1.41
	2012	55	1.44	1.08 – 1.87
	2013	80	2.07	1.64 – 2.57
	2014	50	1.25	0.93 – 1.65
	2015	61	1.51	1.16 – 1.94
	2016	49	1.23	0.91 – 1.63
	2017	40	1.05	0.75 – 1.43
	2018	23	0.61	0.39 – 0.92
	2019	14	0.37	0.20 – 0.62
	2020	6	0.16	0.06 – 0.35
Renal agenesis or dysgenesis	1999	200	5.73	4.93 – 6.52
	2000	177	4.87	4.15 – 5.59
	2001	193	5.29	4.54 – 6.03
	2002	181	4.86	4.15 – 5.57
	2003	222	5.88	5.11 – 6.66
	2004	212	5.56	4.81 – 6.31
	2005	189	4.90	4.20 – 5.60
	2006	240	6.01	5.25 – 6.77
	2007	247	6.06	5.31 – 6.82
	2008	241	5.95	5.20 – 6.70
	2009	260	6.47	5.69 – 7.26
	2010	263	6.82	5.99 – 7.64
	2011	262	6.94	6.10 – 7.79
	2012	241	6.30	5.51 – 7.10
	2013	286	7.39	6.53 – 8.24

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2014	264	6.61	5.81 – 7.41
	2015	256	6.35	5.57 – 7.12
	2016	283	7.13	6.30 – 7.96
	2017	292	7.65	6.77 – 8.52
	2018	313	8.31	7.39 – 9.23
	2019	348	9.21	8.25 – 10.18
	2020	298	8.09	7.17 – 9.01
Bladder exstrophy	1999	4	0.11	0.03 – 0.29
	2000	11	0.30	0.15 – 0.54
	2001	5	0.14	0.04 – 0.32
	2002	12	0.32	0.17 – 0.56
	2003	11	0.29	0.15 – 0.52
	2004	10	0.26	0.13 – 0.48
	2005	3	0.08	0.02 – 0.23
	2006	6	0.15	0.06 – 0.33
	2007	7	0.17	0.07 – 0.35
	2008	8	0.20	0.09 – 0.39
	2009	5	0.12	0.04 – 0.29
	2010	9	0.23	0.11 – 0.44
	2011	6	0.16	0.06 – 0.35
	2012	7	0.18	0.07 – 0.38
	2013	11	0.28	0.14 – 0.51
	2014	5	0.13	0.04 – 0.29
	2015	7	0.17	0.07 – 0.36
	2016	2	0.05	0.01 – 0.18
	2017	3	0.08	0.02 – 0.23
	2018	3	0.08	0.02 – 0.23
	2019	9	0.24	0.11 – 0.45
	2020	4	0.11	0.03 – 0.28
Musculoskeletal				
Congenital hip dislocation without hip dysplasia	1999	169	4.84	4.11 – 5.57
	2000	149	4.10	3.44 – 4.76
	2001	127	3.48	2.87 – 4.08
	2002	110	2.95	2.40 – 3.51
	2003	124	3.29	2.71 – 3.86
	2004	113	2.96	2.42 – 3.51
	2005	107	2.78	2.25 – 3.30
	2006	107	2.68	2.17 – 3.19
	2007	115	2.82	2.31 – 3.34
	2008	96	2.37	1.92 – 2.89
	2009	108	2.69	2.18 – 3.20
	2010	111	2.88	2.34 – 3.41
	2011	76	2.01	1.59 – 2.52

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2012	71	1.86	1.45 – 2.34
	2013	88	2.27	1.82 – 2.80
	2014	74	1.85	1.45 – 2.33
	2015	80	1.98	1.57 – 2.47
	2016	75	1.89	1.49 – 2.37
	2017	76	1.99	1.57 – 2.49
	2018	54	1.43	1.08 – 1.87
	2019	47	1.24	0.91 – 1.65
	2020	45	1.22	0.89 – 1.63
Talipes equinovarus / clubfoot	1999	500	14.32	13.06 – 15.58
	2000	519	14.28	13.06 – 15.51
	2001	536	14.68	13.44 – 15.92
	2002	572	15.36	14.10 – 16.62
	2003	574	15.21	13.97 – 16.45
	2004	583	15.28	14.04 – 16.52
	2005	553	14.34	13.15 – 15.54
	2006	580	14.53	13.34 – 15.71
	2007	626	15.36	14.16 – 16.57
	2008	620	15.30	14.10 – 16.50
	2009	646	16.09	14.85 – 17.33
	2010	645	16.72	15.43 – 18.01
	2011	643	17.04	15.73 – 18.36
	2012	653	17.07	15.77 – 18.38
	2013	646	16.69	15.40 – 17.97
	2014	736	18.42	17.09 – 19.75
	2015	699	17.33	16.04 – 18.61
	2016	766	19.29	17.93 – 20.66
	2017	749	19.61	18.21 – 21.02
	2018	743	19.73	18.32 – 21.15
	2019	730	19.33	17.92 – 20.73
	2020	695	18.87	17.47 – 20.27
Reduction defects of the upper limbs	1999	141	4.04	3.37 – 4.70
	2000	157	4.32	3.65 – 5.00
	2001	148	4.05	3.40 – 4.71
	2002	148	3.97	3.33 – 4.61
	2003	151	4.00	3.36 – 4.64
	2004	149	3.91	3.28 – 4.53
	2005	156	4.05	3.41 – 4.68
	2006	164	4.11	3.48 – 4.74
	2007	167	4.10	3.48 – 4.72
	2008	169	4.17	3.54 – 4.80
	2009	168	4.18	3.55 – 4.82
	2010	194	5.03	4.32 – 5.74

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2011	183	4.85	4.15 – 5.55
	2012	140	3.66	3.05 – 4.27
	2013	161	4.16	3.52 – 4.80
	2014	153	3.83	3.22 – 4.44
	2015	176	4.36	3.72 – 5.01
	2016	164	4.13	3.50 – 4.76
	2017	146	3.82	3.20 – 4.44
	2018	161	4.28	3.62 – 4.94
	2019	158	4.18	3.53 – 4.84
	2020	147	3.99	3.35 – 4.64
Reduction defects of the lower limbs	1999	81	2.32	1.84 – 2.88
	2000	55	1.51	1.14 – 1.97
	2001	79	2.16	1.71 – 2.70
	2002	63	1.69	1.30 – 2.16
	2003	75	1.99	1.56 – 2.49
	2004	64	1.68	1.29 – 2.14
	2005	83	2.15	1.71 – 2.67
	2006	72	1.80	1.41 – 2.27
	2007	89	2.18	1.75 – 2.69
	2008	83	2.05	1.63 – 2.54
	2009	75	1.87	1.47 – 2.34
	2010	84	2.18	1.74 – 2.70
	2011	79	2.09	1.66 – 2.61
	2012	84	2.20	1.75 – 2.72
	2013	65	1.68	1.30 – 2.14
	2014	81	2.03	1.61 – 2.52
	2015	82	2.03	1.62 – 2.52
	2016	69	1.74	1.35 – 2.20
	2017	78	2.04	1.61 – 2.55
	2018	56	1.49	1.12 – 1.93
	2019	86	2.28	1.82 – 2.81
	2020	75	2.04	1.60 – 2.55
Craniosynostosis	1999	141	4.04	3.37 – 4.70
	2000	165	4.54	3.85 – 5.23
	2001	139	3.81	3.17 – 4.44
	2002	173	4.65	3.95 – 5.34
	2003	168	4.45	3.78 – 5.13
	2004	172	4.51	3.84 – 5.18
	2005	159	4.12	3.48 – 4.77
	2006	180	4.51	3.85 – 5.17
	2007	217	5.33	4.62 – 6.03
	2008	213	5.26	4.55 – 5.96
	2009	208	5.18	4.48 – 5.88

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2010	258	6.69	5.87 – 7.50
	2011	231	6.12	5.33 – 6.91
	2012	273	7.14	6.29 – 7.99
	2013	226	5.84	5.08 – 6.60
	2014	248	6.21	5.44 – 6.98
	2015	254	6.30	5.52 – 7.07
	2016	236	5.94	5.19 – 6.70
	2017	250	6.55	5.74 – 7.36
	2018	285	7.57	6.69 – 8.45
	2019	270	7.15	6.30 – 8.00
	2020	250	6.79	5.95 – 7.63
Achondroplasia	1999	12	0.34	0.18 – 0.60
	2000	10	0.28	0.13 – 0.51
	2001	13	0.36	0.19 – 0.61
	2002	10	0.27	0.13 – 0.49
	2003	11	0.29	0.15 – 0.52
	2004	9	0.24	0.11 – 0.45
	2005	10	0.26	0.12 – 0.48
	2006	9	0.23	0.10 – 0.43
	2007	19	0.47	0.28 – 0.73
	2008	12	0.30	0.15 – 0.52
	2009	16	0.40	0.23 – 0.65
	2010	13	0.34	0.18 – 0.58
	2011	11	0.29	0.15 – 0.52
	2012	15	0.39	0.22 – 0.65
	2013	16	0.41	0.24 – 0.67
	2014	13	0.33	0.17 – 0.56
	2015	17	0.42	0.25 – 0.67
	2016	23	0.58	0.37 – 0.87
	2017	14	0.37	0.20 – 0.62
	2018	24	0.64	0.41 – 0.95
	2019	13	0.34	0.18 – 0.59
	2020	17	0.46	0.27 – 0.74
Diaphragmatic hernia	1999	112	3.21	2.61 – 3.80
	2000	99	2.72	2.21 – 3.32
	2001	83	2.27	1.81 – 2.82
	2002	95	2.55	2.06 – 3.12
	2003	108	2.86	2.32 – 3.40
	2004	100	2.62	2.13 – 3.19
	2005	97	2.52	2.04 – 3.07
	2006	116	2.91	2.38 – 3.43
	2007	128	3.14	2.60 – 3.69
	2008	115	2.84	2.32 – 3.36

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2009	107	2.66	2.16 – 3.17
	2010	121	3.14	2.58 – 3.70
	2011	100	2.65	2.16 – 3.22
	2012	107	2.80	2.27 – 3.33
	2013	121	3.13	2.57 – 3.68
	2014	110	2.75	2.24 – 3.27
	2015	97	2.40	1.95 – 2.93
	2016	105	2.64	2.14 – 3.15
	2017	121	3.17	2.60 – 3.73
	2018	107	2.84	2.30 – 3.38
	2019	93	2.46	1.99 – 3.02
	2020	117	3.18	2.60 – 3.75
Omphalocele	1999	78	2.23	1.77 – 2.79
	2000	83	2.28	1.82 – 2.83
	2001	85	2.33	1.86 – 2.88
	2002	77	2.07	1.63 – 2.58
	2003	73	1.93	1.52 – 2.43
	2004	83	2.18	1.73 – 2.70
	2005	73	1.89	1.48 – 2.38
	2006	86	2.15	1.72 – 2.66
	2007	80	1.96	1.56 – 2.44
	2008	79	1.95	1.54 – 2.43
	2009	90	2.24	1.80 – 2.75
	2010	79	2.05	1.62 – 2.55
	2011	69	1.83	1.42 – 2.31
	2012	87	2.27	1.82 – 2.81
	2013	85	2.20	1.75 – 2.72
	2014	86	2.15	1.72 – 2.66
	2015	96	2.38	1.93 – 2.91
	2016	86	2.17	1.73 – 2.68
	2017	94	2.46	1.99 – 3.01
	2018	84	2.23	1.78 – 2.76
	2019	82	2.17	1.73 – 2.69
	2020	86	2.33	1.87 – 2.88
Gastroschisis	1999	137	3.92	3.27 – 4.58
	2000	143	3.94	3.29 – 4.58
	2001	148	4.05	3.40 – 4.71
	2002	149	4.00	3.36 – 4.64
	2003	173	4.58	3.90 – 5.27
	2004	165	4.33	3.67 – 4.99
	2005	208	5.40	4.66 – 6.13
	2006	204	5.11	4.41 – 5.81
	2007	257	6.31	5.54 – 7.08

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2008	250	6.17	5.40 – 6.93
	2009	242	6.03	5.27 – 6.79
	2010	255	6.61	5.80 – 7.42
	2011	216	5.73	4.96 – 6.49
	2012	224	5.86	5.09 – 6.62
	2013	220	5.68	4.93 – 6.43
	2014	232	5.81	5.06 – 6.55
	2015	231	5.73	4.99 – 6.46
	2016	188	4.74	4.06 – 5.41
	2017	176	4.61	3.93 – 5.29
	2018	182	4.83	4.13 – 5.54
	2019	172	4.55	3.87 – 5.23
	2020	144	3.91	3.27 – 4.55
Chromosomal				
Trisomy 21 (Down syndrome)	1999	426	12.20	11.04 – 13.36
	2000	476	13.10	11.92 – 14.28
	2001	494	13.53	12.34 – 14.72
	2002	455	12.22	11.10 – 13.34
	2003	457	12.11	11.00 – 13.22
	2004	513	13.45	12.29 – 14.61
	2005	482	12.50	11.39 – 13.62
	2006	559	14.00	12.84 – 15.16
	2007	550	13.50	12.37 – 14.63
	2008	544	13.42	12.30 – 14.55
	2009	556	13.84	12.69 – 15.00
	2010	580	15.04	13.81 – 16.26
	2011	553	14.66	13.44 – 15.88
	2012	571	14.93	13.71 – 16.16
	2013	551	14.23	13.05 – 15.42
	2014	561	14.04	12.88 – 15.21
	2015	524	12.99	11.88 – 14.10
	2016	574	14.46	13.28 – 15.64
	2017	553	14.48	13.27 – 15.69
	2018	587	15.59	14.33 – 16.85
	2019	576	15.25	14.00 – 16.50
	2020	552	14.99	13.74 – 16.24
Trisomy 13 (Patau syndrome)	1999	43	1.23	0.89 – 1.66
	2000	51	1.40	1.05 – 1.85
	2001	42	1.15	0.83 – 1.55
	2002	43	1.15	0.84 – 1.56
	2003	42	1.11	0.80 – 1.50
	2004	46	1.21	0.88 – 1.61
	2005	34	0.88	0.61 – 1.23

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2006	42	1.05	0.76 – 1.42
	2007	51	1.25	0.93 – 1.65
	2008	45	1.11	0.81 – 1.49
	2009	53	1.32	0.99 – 1.73
	2010	59	1.53	1.16 – 1.97
	2011	43	1.14	0.82 – 1.54
	2012	53	1.39	1.04 – 1.81
	2013	43	1.11	0.80 – 1.50
	2014	45	1.13	0.82 – 1.51
	2015	38	0.94	0.67 – 1.29
	2016	51	1.28	0.96 – 1.69
	2017	41	1.07	0.77 – 1.46
	2018	39	1.04	0.74 – 1.42
	2019	28	0.74	0.49 – 1.07
	2020	38	1.03	0.73 – 1.42
Trisomy 18 (Edwards syndrome)	1999	84	2.41	1.92 – 2.98
	2000	78	2.15	1.70 – 2.68
	2001	81	2.22	1.76 – 2.76
	2002	82	2.20	1.75 – 2.73
	2003	80	2.12	1.68 – 2.64
	2004	97	2.54	2.06 – 3.10
	2005	96	2.49	2.02 – 3.04
	2006	110	2.75	2.24 – 3.27
	2007	102	2.50	2.02 – 2.99
	2008	120	2.96	2.43 – 3.49
	2009	120	2.99	2.45 – 3.52
	2010	99	2.57	2.09 – 3.12
	2011	109	2.89	2.35 – 3.43
	2012	112	2.93	2.39 – 3.47
	2013	95	2.45	1.99 – 3.00
	2014	116	2.90	2.38 – 3.43
	2015	87	2.16	1.73 – 2.66
	2016	107	2.70	2.18 – 3.21
	2017	84	2.20	1.75 – 2.72
	2018	86	2.28	1.83 – 2.82
	2019	90	2.38	1.92 – 2.93
	2020	90	2.44	1.96 – 3.00
Infants and fetuses with regular reportable birth defects	1999	11,501	329.39	323.37 – 335.41
	2000	12,445	342.53	336.51 – 348.55
	2001	12,382	339.15	333.17 – 345.12
	2002	13,116	352.23	346.20 – 358.26
	2003	13,867	367.46	361.34 – 373.58
	2004	15,195	398.36	392.02 – 404.69

Birth Defect (Body System)	Year	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
	2005	15,992	414.80	408.37 – 421.23
	2006	16,691	418.00	411.66 – 424.34
	2007	17,448	428.22	421.87 – 434.58
	2008	18,271	450.87	444.33 – 457.40
	2009	19,091	475.37	468.63 – 482.12
	2010	19,686	510.34	503.21 – 517.46
	2011	19,769	524.00	516.69 – 531.30
	2012	20,330	531.59	524.28 – 538.90
	2013	21,471	554.65	547.23 – 562.07
	2014	22,595	565.61	558.23 – 572.98
	2015	23,275	576.91	569.50 – 584.33
	2016	25,657	646.27	638.37 – 654.18
	2017	24,281	635.83	627.84 – 643.83
	2018	25,494	677.12	668.81 – 685.43
	2019	25,259	668.74	660.49 – 676.99
	2020	25,917	703.66	695.09 – 712.23

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report

Table 2B. Prevalence of Selected Birth Defects by 5-Year Period, Texas, 2001–2020

Birth Defect (Body System)	5-Year Period	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System				
Anencephaly	2001-2005	462	2.46	2.23 – 2.68
	2006-2010	519	2.60	2.37 – 2.82
	2011-2015	461	2.36	2.15 – 2.58
	2016-2020	441	2.32	2.10 – 2.54
Spina bifida without anencephaly	2001-2005	672	3.57	3.30 – 3.84
	2006-2010	745	3.73	3.46 – 3.99
	2011-2015	750	3.85	3.57 – 4.12
	2016-2020	686	3.61	3.34 – 3.88
Encephalocele	2001-2005	150	0.80	0.67 – 0.92
	2006-2010	201	1.01	0.87 – 1.14
	2011-2015	192	0.98	0.85 – 1.12
	2016-2020	199	1.05	0.90 – 1.19
Microcephaly, severe (head circumference <3rd percentile)	2001-2005	599	3.18	2.93 – 3.44
	2006-2010	846	4.23	3.95 – 4.52
	2011-2015	1,091	5.60	5.26 – 5.93
	2016-2020	1,539	8.09	7.69 – 8.50
Holoprosencephaly	2001-2005	220	1.17	1.01 – 1.32
	2006-2010	205	1.03	0.88 – 1.17
	2011-2015	193	0.99	0.85 – 1.13
	2016-2020	188	0.99	0.85 – 1.13
Hydrocephaly without spina bifida	2001-2005	1,233	6.55	6.19 – 6.92
	2006-2010	1,475	7.38	7.00 – 7.75
	2011-2015	1,678	8.61	8.19 – 9.02
	2016-2020	1,857	9.77	9.32 – 10.21
Eye and Ear				
Anophthalmia	2001-2005	59	0.31	0.24 – 0.40
	2006-2010	65	0.33	0.25 – 0.41
	2011-2015	50	0.26	0.19 – 0.34
	2016-2020	49	0.26	0.19 – 0.34
Microphthalmia	2001-2005	502	2.67	2.43 – 2.90
	2006-2010	590	2.95	2.71 – 3.19
	2011-2015	515	2.64	2.41 – 2.87
	2016-2020	525	2.76	2.52 – 3.00
Cataract	2001-2005	344	1.83	1.63 – 2.02
	2006-2010	402	2.01	1.81 – 2.21
	2011-2015	366	1.88	1.68 – 2.07
	2016-2020	413	2.17	1.96 – 2.38

Birth Defect (Body System)	5-Year Period	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Anotia or microtia	2001-2005	561	2.98	2.73 – 3.23
	2006-2010	705	3.53	3.27 – 3.79
	2011-2015	711	3.65	3.38 – 3.91
	2016-2020	825	4.34	4.04 – 4.63
Cardiac and Circulatory				
Common truncus	2001-2005	138	0.73	0.61 – 0.86
	2006-2010	156	0.78	0.66 – 0.90
	2011-2015	164	0.84	0.71 – 0.97
	2016-2020	143	0.75	0.63 – 0.88
Transposition of the great vessels	2001-2005	623	3.31	3.05 – 3.57
	2006-2010	745	3.73	3.46 – 3.99
	2011-2015	668	3.43	3.17 – 3.69
	2016-2020	556	2.92	2.68 – 3.17
Double outlet right ventricle	2001-2005	386	2.05	1.85 – 2.26
	2006-2010	450	2.25	2.04 – 2.46
	2011-2015	484	2.48	2.26 – 2.70
	2016-2020	505	2.66	2.42 – 2.89
Tetralogy of Fallot	2001-2005	665	3.53	3.27 – 3.80
	2006-2010	758	3.79	3.52 – 4.06
	2011-2015	854	4.38	4.09 – 4.67
	2016-2020	846	4.45	4.15 – 4.75
Ventricular septal defect	2001-2005	9,517	50.57	49.56 – 51.59
	2006-2010	12,698	63.51	62.41 – 64.62
	2011-2015	12,999	66.67	65.52 – 67.82
	2016-2020	13,351	70.22	69.03 – 71.41
Atrial septal defect	2001-2005	9,588	50.95	49.93 – 51.97
	2006-2010	13,409	67.07	65.93 – 68.20
	2011-2015	16,816	86.25	84.94 – 87.55
	2016-2020	17,382	91.42	90.06 – 92.78
Atrioventricular septal defect (endocardial cushion defect)	2001-2005	762	4.05	3.76 – 4.34
	2006-2010	887	4.44	4.14 – 4.73
	2011-2015	891	4.57	4.27 – 4.87
	2016-2020	851	4.48	4.17 – 4.78
Pulmonary valve atresia or stenosis	2001-2005	1,530	8.13	7.72 – 8.54
	2006-2010	2,062	10.31	9.87 – 10.76
	2011-2015	2,147	11.01	10.55 – 11.48
	2016-2020	2,206	11.60	11.12 – 12.09
Tricuspid valve atresia or stenosis	2001-2005	305	1.62	1.44 – 1.80
	2006-2010	357	1.79	1.60 – 1.97
	2011-2015	389	2.00	1.80 – 2.19
	2016-2020	441	2.32	2.10 – 2.54

Birth Defect (Body System)	5-Year Period	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Ebstein anomaly	2001-2005	137	0.73	0.61 – 0.85
	2006-2010	131	0.66	0.54 – 0.77
	2011-2015	155	0.79	0.67 – 0.92
	2016-2020	165	0.87	0.74 – 1.00
Aortic valve stenosis	2001-2005	444	2.36	2.14 – 2.58
	2006-2010	492	2.46	2.24 – 2.68
	2011-2015	504	2.58	2.36 – 2.81
	2016-2020	428	2.25	2.04 – 2.46
Hypoplastic left heart syndrome	2001-2005	391	2.08	1.87 – 2.28
	2006-2010	435	2.18	1.97 – 2.38
	2011-2015	485	2.49	2.27 – 2.71
	2016-2020	439	2.31	2.09 – 2.52
Patent ductus arteriosus	2001-2005	9,104	48.38	47.39 – 49.37
	2006-2010	12,187	60.95	59.87 – 62.04
	2011-2015	14,087	72.25	71.06 – 73.44
	2016-2020	10,888	57.26	56.19 – 58.34
Coarctation of the aorta	2001-2005	925	4.92	4.60 – 5.23
	2006-2010	1,042	5.21	4.90 – 5.53
	2011-2015	1,094	5.61	5.28 – 5.94
	2016-2020	1,108	5.83	5.48 – 6.17
Respiratory				
Choanal atresia or stenosis	2001-2005	200	1.06	0.92 – 1.21
	2006-2010	264	1.32	1.16 – 1.48
	2011-2015	279	1.43	1.26 – 1.60
	2016-2020	242	1.27	1.11 – 1.43
Agenesis, aplasia, or hypoplasia of the lung	2001-2005	623	3.31	3.05 – 3.57
	2006-2010	537	2.69	2.46 – 2.91
	2011-2015	531	2.72	2.49 – 2.96
	2016-2020	482	2.53	2.31 – 2.76
Oral Clefts				
Cleft palate alone (without cleft lip)	2001-2005	1,078	5.73	5.39 – 6.07
	2006-2010	1,253	6.27	5.92 – 6.61
	2011-2015	1,110	5.69	5.36 – 6.03
	2016-2020	1,132	5.95	5.61 – 6.30
Cleft lip with or without cleft palate	2001-2005	2,062	10.96	10.48 – 11.43
	2006-2010	2,094	10.47	10.02 – 10.92
	2011-2015	2,133	10.94	10.48 – 11.40
	2016-2020	2,013	10.59	10.12 – 11.05
Gastrointestinal				
Tracheoesophageal fistula/ esophageal atresia	2001-2005	381	2.02	1.82 – 2.23
	2006-2010	412	2.06	1.86 – 2.26
	2011-2015	460	2.36	2.14 – 2.57
	2016-2020	443	2.33	2.11 – 2.55

Birth Defect (Body System)	5-Year Period	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Pyloric stenosis	2001-2005	3,419	18.17	17.56 – 18.78
	2006-2010	3,818	19.10	18.49 – 19.70
	2011-2015	2,489	12.77	12.26 – 13.27
	2016-2020	2,466	12.97	12.46 – 13.48
Stenosis or atresia of the small intestine	2001-2005	576	3.06	2.81 – 3.31
	2006-2010	716	3.58	3.32 – 3.84
	2011-2015	686	3.52	3.26 – 3.78
	2016-2020	691	3.63	3.36 – 3.91
Stenosis or atresia of large intestine, rectum, or anal canal	2001-2005	1,009	5.36	5.03 – 5.69
	2006-2010	1,067	5.34	5.02 – 5.66
	2011-2015	1,037	5.32	4.99 – 5.64
	2016-2020	1,026	5.40	5.07 – 5.73
Hirschsprung disease	2001-2005	239	1.27	1.11 – 1.43
	2006-2010	284	1.42	1.26 – 1.59
	2011-2015	307	1.57	1.40 – 1.75
	2016-2020	297	1.56	1.38 – 1.74
Biliary atresia	2001-2005	133	0.71	0.59 – 0.83
	2006-2010	149	0.75	0.63 – 0.86
	2011-2015	132	0.68	0.56 – 0.79
	2016-2020	134	0.70	0.59 – 0.82
Genitourinary				
Hypospadias (among males)	2001-2005	5,147	53.50	52.04 – 54.96
	2006-2010	5,989	58.63	57.14 – 60.11
	2011-2015	6,714	67.35	65.74 – 68.96
	2016-2020	6,899	71.01	69.34 – 72.69
Epispadias	2001-2005	144	0.77	0.64 – 0.89
	2006-2010	206	1.03	0.89 – 1.17
	2011-2015	285	1.46	1.29 – 1.63
	2016-2020	132	0.69	0.58 – 0.81
Renal agenesis or dysgenesis	2001-2005	997	5.30	4.97 – 5.63
	2006-2010	1,251	6.26	5.91 – 6.60
	2011-2015	1,309	6.71	6.35 – 7.08
	2016-2020	1,534	8.07	7.66 – 8.47
Bladder exstrophy	2001-2005	41	0.22	0.16 – 0.30
	2006-2010	35	0.18	0.12 – 0.24
	2011-2015	36	0.18	0.13 – 0.26
	2016-2020	21	0.11	0.07 – 0.17
Musculoskeletal				
Congenital hip dislocation without hip dysplasia	2001-2005	581	3.09	2.84 – 3.34
	2006-2010	537	2.69	2.46 – 2.91
	2011-2015	389	2.00	1.80 – 2.19
	2016-2020	297	1.56	1.38 – 1.74

Birth Defect (Body System)	5-Year Period	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Talipes equinovarus/clubfoot	2001-2005	2,818	14.97	14.42 – 15.53
	2006-2010	3,117	15.59	15.04 – 16.14
	2011-2015	3,377	17.32	16.74 – 17.90
	2016-2020	3,683	19.37	18.74 – 20.00
Reduction defects of the upper limbs	2001-2005	752	4.00	3.71 – 4.28
	2006-2010	862	4.31	4.02 – 4.60
	2011-2015	813	4.17	3.88 – 4.46
	2016-2020	776	4.08	3.79 – 4.37
Reduction defects of the lower limbs	2001-2005	364	1.93	1.74 – 2.13
	2006-2010	403	2.02	1.82 – 2.21
	2011-2015	391	2.01	1.81 – 2.20
	2016-2020	364	1.91	1.72 – 2.11
Craniosynostosis	2001-2005	811	4.31	4.01 – 4.61
	2006-2010	1,076	5.38	5.06 – 5.70
	2011-2015	1,232	6.32	5.97 – 6.67
	2016-2020	1,291	6.79	6.42 – 7.16
Achondroplasia	2001-2005	53	0.28	0.21 – 0.37
	2006-2010	69	0.35	0.27 – 0.44
	2011-2015	72	0.37	0.29 – 0.47
	2016-2020	91	0.48	0.39 – 0.59
Diaphragmatic hernia	2001-2005	483	2.57	2.34 – 2.80
	2006-2010	587	2.94	2.70 – 3.17
	2011-2015	535	2.74	2.51 – 2.98
	2016-2020	543	2.86	2.62 – 3.10
Omphalocele	2001-2005	391	2.08	1.87 – 2.28
	2006-2010	414	2.07	1.87 – 2.27
	2011-2015	423	2.17	1.96 – 2.38
	2016-2020	432	2.27	2.06 – 2.49
Gastroschisis	2001-2005	843	4.48	4.18 – 4.78
	2006-2010	1,208	6.04	5.70 – 6.38
	2011-2015	1,123	5.76	5.42 – 6.10
	2016-2020	862	4.53	4.23 – 4.84
Chromosomal				
Trisomy 21 (Down syndrome)	2001-2005	2,401	12.76	12.25 – 13.27
	2006-2010	2,789	13.95	13.43 – 14.47
	2011-2015	2,760	14.16	13.63 – 14.68
	2016-2020	2,842	14.95	14.40 – 15.50
Trisomy 13 (Patau syndrome)	2001-2005	207	1.10	0.95 – 1.25
	2006-2010	250	1.25	1.10 – 1.41
	2011-2015	222	1.14	0.99 – 1.29
	2016-2020	197	1.04	0.89 – 1.18

Birth Defect (Body System)	5-Year Period	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Trisomy 18 (Edwards syndrome)	2001-2005	436	2.32	2.10 – 2.53
	2006-2010	551	2.76	2.53 – 2.99
	2011-2015	519	2.66	2.43 – 2.89
	2016-2020	457	2.40	2.18 – 2.62
Infants and fetuses with regular reportable birth defects	2001-2005	70,552	374.92	372.15 – 377.68
	2006-2010	91,187	456.08	453.12 – 459.04
	2011-2015	107,440	551.05	547.75 – 554.34
	2016-2020	126,608	665.86	662.20 – 669.53

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report

Table 3. Prevalence of Selected Birth Defects by Mother's Age, Texas, 1999–2020

Birth Defect (Body System)	Mother's Age	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System				
Anencephaly* [p<0.0001]	<20 years	300	3.12	2.77 – 3.47
	20-24 years	579	2.64	2.43 – 2.86
	25-29 years	589	2.52	2.32 – 2.73
	30-34 years	413	2.19	1.98 – 2.40
	35-39 years	176	2.00	1.71 – 2.30
	40+ years	49	2.54	1.88 – 3.36
Spina bifida without anencephaly* [p=0.0236]	<20 years	324	3.37	3.00 – 3.74
	20-24 years	789	3.60	3.35 – 3.85
	25-29 years	863	3.69	3.45 – 3.94
	30-34 years	714	3.79	3.51 – 4.07
	35-39 years	354	4.03	3.61 – 4.45
	40+ years	94	4.88	3.94 – 5.97
Encephalocele* [p=0.0021]	<20 years	117	1.22	1.00 – 1.44
	20-24 years	224	1.02	0.89 – 1.16
	25-29 years	202	0.86	0.75 – 0.98
	30-34 years	150	0.80	0.67 – 0.92
	35-39 years	95	1.08	0.88 – 1.32
	40+ years	26	1.35	0.88 – 1.98
Microcephaly, severe (head circumference <3rd percentile)* [p<0.0001]	<20 years	624	6.49	5.98 – 7.00
	20-24 years	1,205	5.49	5.18 – 5.81
	25-29 years	1,045	4.47	4.20 – 4.75
	30-34 years	805	4.27	3.98 – 4.57
	35-39 years	452	5.15	4.67 – 5.62
	40+ years	154	7.99	6.73 – 9.26
Holoprosencephaly* [p=0.0005]	<20 years	113	1.18	0.96 – 1.39
	20-24 years	209	0.95	0.82 – 1.08
	25-29 years	224	0.96	0.83 – 1.08
	30-34 years	187	0.99	0.85 – 1.14
	35-39 years	115	1.31	1.07 – 1.55
	40+ years	37	1.92	1.35 – 2.65
Hydrocephaly without spina bifida* [p<0.0001]	<20 years	871	9.06	8.46 – 9.66
	20-24 years	1,663	7.58	7.22 – 7.95
	25-29 years	1,766	7.56	7.21 – 7.91
	30-34 years	1,447	7.68	7.29 – 8.08
	35-39 years	798	9.09	8.45 – 9.72
	40+ years	256	13.29	11.66 – 14.91
Eye and Ear				
Anophthalmia* [p=0.0001]	<20 years	50	0.52	0.39 – 0.69
	20-24 years	54	0.25	0.18 – 0.32
	25-29 years	62	0.27	0.20 – 0.34
	30-34 years	42	0.22	0.16 – 0.30
	35-39 years	26	0.30	0.19 – 0.43
	40+ years	12	0.62	0.32 – 1.09

Birth Defect (Body System)	Mother's Age	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Microphthalmia*	<20 years	237	2.47	2.15 – 2.78
[p<0.0001]	20-24 years	519	2.37	2.16 – 2.57
	25-29 years	555	2.38	2.18 – 2.57
	30-34 years	506	2.69	2.45 – 2.92
	35-39 years	326	3.71	3.31 – 4.11
	40+ years	163	8.46	7.16 – 9.76
Cataract*	<20 years	170	1.77	1.50 – 2.03
[p<0.0001]	20-24 years	406	1.85	1.67 – 2.03
	25-29 years	447	1.91	1.74 – 2.09
	30-34 years	344	1.83	1.63 – 2.02
	35-39 years	193	2.20	1.89 – 2.51
	40+ years	70	3.63	2.83 – 4.59
Anotia or microtia*	<20 years	290	3.02	2.67 – 3.36
[p<0.0001]	20-24 years	738	3.37	3.12 – 3.61
	25-29 years	780	3.34	3.11 – 3.57
	30-34 years	712	3.78	3.50 – 4.06
	35-39 years	375	4.27	3.84 – 4.70
	40+ years	107	5.55	4.50 – 6.61
Cardiac and Circulatory				
Common truncus*	<20 years	63	0.66	0.50 – 0.84
[p=0.0428]	20-24 years	159	0.73	0.61 – 0.84
	25-29 years	161	0.69	0.58 – 0.80
	30-34 years	160	0.85	0.72 – 0.98
	35-39 years	79	0.90	0.71 – 1.12
	40+ years	23	1.19	0.76 – 1.79
Transposition of the great vessels*	<20 years	281	2.92	2.58 – 3.27
[p<0.0001]	20-24 years	662	3.02	2.79 – 3.25
	25-29 years	803	3.44	3.20 – 3.68
	30-34 years	672	3.57	3.30 – 3.84
	35-39 years	333	3.79	3.38 – 4.20
	40+ years	91	4.72	3.80 – 5.80
Double outlet right ventricle*	<20 years	207	2.15	1.86 – 2.45
[p<0.0001]	20-24 years	439	2.00	1.81 – 2.19
	25-29 years	529	2.26	2.07 – 2.46
	30-34 years	405	2.15	1.94 – 2.36
	35-39 years	261	2.97	2.61 – 3.33
	40+ years	106	5.50	4.45 – 6.55
Tetralogy of Fallot*	<20 years	317	3.30	2.94 – 3.66
[p<0.0001]	20-24 years	758	3.46	3.21 – 3.70
	25-29 years	839	3.59	3.35 – 3.84
	30-34 years	762	4.05	3.76 – 4.33
	35-39 years	480	5.46	4.98 – 5.95
	40+ years	181	9.39	8.03 – 10.76

Birth Defect (Body System)	Mother's Age	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Ventricular septal defect*	<20 years	5,148	53.56	52.10 – 55.02
[p<0.0001]	20-24 years	12,148	55.40	54.41 – 56.38
	25-29 years	13,342	57.12	56.15 – 58.09
	30-34 years	11,741	62.34	61.21 – 63.47
	35-39 years	6,931	78.91	77.05 – 80.77
	40+ years	2,235	116.00	111.19 – 120.81
Atrial septal defect*	<20 years	6,219	64.70	63.10 – 66.31
[p<0.0001]	20-24 years	14,638	66.75	65.67 – 67.83
	25-29 years	15,611	66.84	65.79 – 67.88
	30-34 years	12,978	68.91	67.72 – 70.10
	35-39 years	7,799	88.79	86.82 – 90.76
	40+ years	2,745	142.47	137.14 – 147.80
Atrioventricular septal defect (endocardial	<20 years	323	3.36	2.99 – 3.73
cushion defect)*	20-24 years	721	3.29	3.05 – 3.53
[p<0.0001]	25-29 years	819	3.51	3.27 – 3.75
	30-34 years	791	4.20	3.91 – 4.49
	35-39 years	659	7.50	6.93 – 8.08
	40+ years	368	19.10	17.15 – 21.05
Pulmonary valve atresia or stenosis*	<20 years	880	9.16	8.55 – 9.76
[p<0.0001]	20-24 years	2,096	9.56	9.15 – 9.97
	25-29 years	2,143	9.17	8.79 – 9.56
	30-34 years	1,901	10.09	9.64 – 10.55
	35-39 years	1,048	11.93	11.21 – 12.65
	40+ years	332	17.23	15.38 – 19.09
Tricuspid valve atresia or stenosis*	<20 years	152	1.58	1.33 – 1.83
[p<0.0001]	20-24 years	410	1.87	1.69 – 2.05
	25-29 years	406	1.74	1.57 – 1.91
	30-34 years	353	1.87	1.68 – 2.07
	35-39 years	198	2.25	1.94 – 2.57
	40+ years	72	3.74	2.92 – 4.71
Ebstein anomaly*	<20 years	65	0.68	0.52 – 0.86
[p=0.0008]	20-24 years	142	0.65	0.54 – 0.75
	25-29 years	177	0.76	0.65 – 0.87
	30-34 years	150	0.80	0.67 – 0.92
	35-39 years	73	0.83	0.65 – 1.04
	40+ years	32	1.66	1.14 – 2.34
Aortic valve stenosis*	<20 years	171	1.78	1.51 – 2.05
[p<0.0001]	20-24 years	495	2.26	2.06 – 2.46
	25-29 years	546	2.34	2.14 – 2.53
	30-34 years	480	2.55	2.32 – 2.78
	35-39 years	276	3.14	2.77 – 3.51
	40+ years	62	3.22	2.47 – 4.13

Birth Defect (Body System)	Mother's Age	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Hypoplastic left heart syndrome* [p=0.006]	<20 years	199	2.07	1.78 – 2.36
	20-24 years	473	2.16	1.96 – 2.35
	25-29 years	536	2.29	2.10 – 2.49
	30-34 years	424	2.25	2.04 – 2.47
	35-39 years	195	2.22	1.91 – 2.53
	40+ years	70	3.63	2.83 – 4.59
Patent ductus arteriosus* [p<0.0001]	<20 years	4,841	50.37	48.95 – 51.79
	20-24 years	11,349	51.75	50.80 – 52.70
	25-29 years	12,598	53.94	52.99 – 54.88
	30-34 years	10,868	57.71	56.62 – 58.79
	35-39 years	6,887	78.41	76.56 – 80.26
	40+ years	2,725	141.43	136.12 – 146.74
Coarctation of the aorta* [p<0.0001]	<20 years	448	4.66	4.23 – 5.09
	20-24 years	999	4.56	4.27 – 4.84
	25-29 years	1,270	5.44	5.14 – 5.74
	30-34 years	985	5.23	4.90 – 5.56
	35-39 years	571	6.50	5.97 – 7.03
	40+ years	195	10.12	8.70 – 11.54
Respiratory				
Choanal atresia or stenosis* [p=0.0003]	<20 years	98	1.02	0.83 – 1.24
	20-24 years	256	1.17	1.02 – 1.31
	25-29 years	276	1.18	1.04 – 1.32
	30-34 years	278	1.48	1.30 – 1.65
	35-39 years	129	1.47	1.22 – 1.72
	40+ years	39	2.02	1.44 – 2.77
Agenesis, aplasia, or hypoplasia of the lung* [p=0.0005]	<20 years	328	3.41	3.04 – 3.78
	20-24 years	670	3.06	2.82 – 3.29
	25-29 years	678	2.90	2.68 – 3.12
	30-34 years	488	2.59	2.36 – 2.82
	35-39 years	276	3.14	2.77 – 3.51
	40+ years	75	3.89	3.06 – 4.88
Oral Clefts				
Cleft palate alone (without cleft lip)* [p<0.0001]	<20 years	477	4.96	4.52 – 5.41
	20-24 years	1,254	5.72	5.40 – 6.03
	25-29 years	1,392	5.96	5.65 – 6.27
	30-34 years	1,098	5.83	5.49 – 6.17
	35-39 years	610	6.94	6.39 – 7.50
	40+ years	180	9.34	7.98 – 10.71
Cleft lip with or without cleft palate* [p<0.0001]	<20 years	1,115	11.60	10.92 – 12.28
	20-24 years	2,379	10.85	10.41 – 11.28
	25-29 years	2,362	10.11	9.70 – 10.52
	30-34 years	1,921	10.20	9.74 – 10.66
	35-39 years	975	11.10	10.40 – 11.80
	40+ years	321	16.66	14.84 – 18.48

Birth Defect (Body System)	Mother's Age	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Gastrointestinal				
Tracheoesophageal fistula/esophageal atresia* [p<0.0001]	<20 years	217	2.26	1.96 – 2.56
	20-24 years	412	1.88	1.70 – 2.06
	25-29 years	432	1.85	1.68 – 2.02
	30-34 years	423	2.25	2.03 – 2.46
	35-39 years	255	2.90	2.55 – 3.26
	40+ years	107	5.55	4.50 – 6.61
Pyloric stenosis* [p<0.0001]	<20 years	2,153	22.40	21.45 – 23.35
	20-24 years	4,107	18.73	18.16 – 19.30
	25-29 years	3,543	15.17	14.67 – 15.67
	30-34 years	2,479	13.16	12.64 – 13.68
	35-39 years	1,102	12.55	11.81 – 13.29
	40+ years	203	10.54	9.09 – 11.99
Stenosis or atresia of the small intestine* [p<0.0001]	<20 years	406	4.22	3.81 – 4.63
	20-24 years	732	3.34	3.10 – 3.58
	25-29 years	673	2.88	2.66 – 3.10
	30-34 years	534	2.84	2.59 – 3.08
	35-39 years	363	4.13	3.71 – 4.56
	40+ years	167	8.67	7.35 – 9.98
Stenosis or atresia of large intestine, rectum, or anal canal* [p<0.0001]	<20 years	536	5.58	5.10 – 6.05
	20-24 years	1,135	5.18	4.87 – 5.48
	25-29 years	1,126	4.82	4.54 – 5.10
	30-34 years	969	5.15	4.82 – 5.47
	35-39 years	559	6.36	5.84 – 6.89
	40+ years	169	8.77	7.45 – 10.09
Hirschsprung disease* [p<0.0001]	<20 years	111	1.15	0.94 – 1.37
	20-24 years	330	1.50	1.34 – 1.67
	25-29 years	317	1.36	1.21 – 1.51
	30-34 years	241	1.28	1.12 – 1.44
	35-39 years	168	1.91	1.62 – 2.20
	40+ years	46	2.39	1.75 – 3.18
Biliary atresia	<20 years	69	0.72	0.56 – 0.91
	20-24 years	172	0.78	0.67 – 0.90
	25-29 years	158	0.68	0.57 – 0.78
	30-34 years	125	0.66	0.55 – 0.78
	35-39 years	61	0.69	0.53 – 0.89
	40+ years	18	0.93	0.55 – 1.48
Genitourinary				
Hypospadias (among males)* [p<0.0001]	<20 years	2,585	52.48	50.46 – 54.51
	20-24 years	6,170	55.13	53.76 – 56.51
	25-29 years	7,512	62.87	61.45 – 64.29
	30-34 years	6,566	68.26	66.61 – 69.91
	35-39 years	3,194	71.10	68.64 – 73.57
	40+ years	772	78.68	73.13 – 84.23

Birth Defect (Body System)	Mother's Age	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Epispadias	<20 years	73	0.76	0.60 – 0.95
	20-24 years	206	0.94	0.81 – 1.07
	25-29 years	247	1.06	0.93 – 1.19
	30-34 years	184	0.98	0.84 – 1.12
	35-39 years	92	1.05	0.84 – 1.28
	40+ years	18	0.93	0.55 – 1.48
Renal agenesis or dysgenesis* [p<0.0001]	<20 years	550	5.72	5.24 – 6.20
	20-24 years	1,299	5.92	5.60 – 6.25
	25-29 years	1,513	6.48	6.15 – 6.80
	30-34 years	1,226	6.51	6.15 – 6.87
	35-39 years	689	7.84	7.26 – 8.43
	40+ years	188	9.76	8.36 – 11.15
Bladder exstrophy	<20 years	19	0.20	0.12 – 0.31
	20-24 years	39	0.18	0.13 – 0.24
	25-29 years	37	0.16	0.11 – 0.22
	30-34 years	32	0.17	0.12 – 0.24
	35-39 years	18	0.20	0.12 – 0.32
	40+ years	3	0.16	0.03 – 0.46
Musculoskeletal				
Congenital hip dislocation without hip dysplasia* [p<0.0001]	<20 years	208	2.16	1.87 – 2.46
	20-24 years	507	2.31	2.11 – 2.51
	25-29 years	551	2.36	2.16 – 2.56
	30-34 years	505	2.68	2.45 – 2.92
	35-39 years	270	3.07	2.71 – 3.44
	40+ years	80	4.15	3.29 – 5.17
Talipes equinovarus/clubfoot* [p<0.0001]	<20 years	1,625	16.91	16.08 – 17.73
	20-24 years	3,688	16.82	16.27 – 17.36
	25-29 years	3,748	16.05	15.53 – 16.56
	30-34 years	2,953	15.68	15.11 – 16.25
	35-39 years	1,535	17.48	16.60 – 18.35
	40+ years	463	24.03	21.84 – 26.22
Reduction defects of the upper limbs* [p<0.0001]	<20 years	509	5.30	4.84 – 5.76
	20-24 years	912	4.16	3.89 – 4.43
	25-29 years	899	3.85	3.60 – 4.10
	30-34 years	725	3.85	3.57 – 4.13
	35-39 years	332	3.78	3.37 – 4.19
	40+ years	123	6.38	5.26 – 7.51
Reduction defects of the lower limbs* [p<0.0001]	<20 years	264	2.75	2.42 – 3.08
	20-24 years	424	1.93	1.75 – 2.12
	25-29 years	464	1.99	1.81 – 2.17
	30-34 years	322	1.71	1.52 – 1.90
	35-39 years	141	1.61	1.34 – 1.87
	40+ years	43	2.23	1.62 – 3.01

Birth Defect (Body System)	Mother's Age	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Craniosynostosis*	<20 years	379	3.94	3.55 – 4.34
[p<0.0001]	20-24 years	1,031	4.70	4.41 – 4.99
	25-29 years	1,309	5.60	5.30 – 5.91
	30-34 years	1,205	6.40	6.04 – 6.76
	35-39 years	619	7.05	6.49 – 7.60
	40+ years	172	8.93	7.59 – 10.26
Achondroplasia*	<20 years	14	0.15	0.08 – 0.24
[p<0.0001]	20-24 years	58	0.26	0.20 – 0.34
	25-29 years	88	0.38	0.30 – 0.46
	30-34 years	91	0.48	0.39 – 0.59
	35-39 years	38	0.43	0.31 – 0.59
	40+ years	18	0.93	0.55 – 1.48
Diaphragmatic hernia	<20 years	259	2.69	2.37 – 3.02
	20-24 years	586	2.67	2.46 – 2.89
	25-29 years	670	2.87	2.65 – 3.09
	30-34 years	505	2.68	2.45 – 2.92
	35-39 years	271	3.09	2.72 – 3.45
	40+ years	68	3.53	2.74 – 4.47
Omphalocele*	<20 years	211	2.20	1.90 – 2.49
[p<0.0001]	20-24 years	418	1.91	1.72 – 2.09
	25-29 years	451	1.93	1.75 – 2.11
	30-34 years	378	2.01	1.80 – 2.21
	35-39 years	242	2.76	2.41 – 3.10
	40+ years	121	6.28	5.16 – 7.40
Gastroschisis*	<20 years	1,559	16.22	15.41 – 17.03
[p<0.0001]	20-24 years	1,770	8.07	7.70 – 8.45
	25-29 years	672	2.88	2.66 – 3.09
	30-34 years	219	1.16	1.01 – 1.32
	35-39 years	76	0.87	0.68 – 1.08
	40+ years	19	0.99	0.59 – 1.54
Chromosomal				
Trisomy 21 (Down syndrome)*	<20 years	718	7.47	6.92 – 8.02
[p<0.0001]	20-24 years	1,506	6.87	6.52 – 7.21
	25-29 years	1,744	7.47	7.12 – 7.82
	30-34 years	2,274	12.07	11.58 – 12.57
	35-39 years	3,145	35.81	34.55 – 37.06
	40+ years	2,307	119.74	114.85 – 124.62
Trisomy 13 (Patau syndrome)*	<20 years	69	0.72	0.56 – 0.91
[p<0.0001]	20-24 years	189	0.86	0.74 – 0.98
	25-29 years	200	0.86	0.74 – 0.97
	30-34 years	199	1.06	0.91 – 1.20
	35-39 years	213	2.43	2.10 – 2.75
	40+ years	98	5.09	4.13 – 6.20

Birth Defect (Body System)	Mother's Age	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Trisomy 18 (Edwards syndrome)* [p<0.0001]	<20 years	126	1.31	1.08 – 1.54
	20-24 years	294	1.34	1.19 – 1.49
	25-29 years	326	1.40	1.24 – 1.55
	30-34 years	339	1.80	1.61 – 1.99
	35-39 years	561	6.39	5.86 – 6.92
	40+ years	479	24.86	22.63 – 27.09
Infants and fetuses with regular reportable birth defects* [p<0.0001]	<20 years	43,491	452.49	448.24 – 456.74
	20-24 years	101,522	462.95	460.10 – 465.79
	25-29 years	111,883	479.01	476.20 – 481.82
	30-34 years	95,913	509.27	506.05 – 512.50
	35-39 years	52,123	593.43	588.33 – 598.52
	40+ years	14,758	765.97	753.61 – 778.33

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

*Statistically significant by Poisson regression [p<0.05].

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

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Texas Birth Defects Registry (TBDR) Annual Report

Table 4. Prevalence of Selected Birth Defects by Mother's Race/Ethnicity, Texas, 1999–2020

Birth Defect (Body System)	Mother's Race/Ethnicity	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System				
Anencephaly* [p<0.0001]	White non-Hispanic	613	2.08	1.91 – 2.24
	Black non-Hispanic	177	1.82	1.55 – 2.09
	Hispanic	1,216	2.99	2.82 – 3.16
Spina bifida without anencephaly* [p<0.0001]	White non-Hispanic	1,023	3.47	3.26 – 3.68
	Black non-Hispanic	257	2.64	2.32 – 2.97
	Hispanic	1,766	4.34	4.14 – 4.55
Encephalocele* [p<0.0001]	White non-Hispanic	220	0.75	0.65 – 0.84
	Black non-Hispanic	118	1.21	1.00 – 1.43
	Hispanic	433	1.06	0.96 – 1.17
Microcephaly, severe (head circumference <3rd percentile)* [p<0.0001]	White non-Hispanic	993	3.37	3.16 – 3.58
	Black non-Hispanic	941	9.68	9.07 – 10.30
	Hispanic	2,138	5.26	5.03 – 5.48
Holoprosencephaly* [p<0.0001]	White non-Hispanic	256	0.87	0.76 – 0.97
	Black non-Hispanic	97	1.00	0.81 – 1.22
	Hispanic	504	1.24	1.13 – 1.35
Hydrocephaly without spina bifida* [p<0.0001]	White non-Hispanic	2,335	7.91	7.59 – 8.24
	Black non-Hispanic	908	9.34	8.74 – 9.95
	Hispanic	3,284	8.08	7.80 – 8.35
Eye and Ear				
Anophthalmia* [p<0.05]	White non-Hispanic	71	0.24	0.19 – 0.30
	Black non-Hispanic	28	0.29	0.19 – 0.42
	Hispanic	143	0.35	0.29 – 0.41
Microphthalmia* [p<0.0001]	White non-Hispanic	760	2.58	2.39 – 2.76
	Black non-Hispanic	221	2.27	1.97 – 2.57
	Hispanic	1,219	3.00	2.83 – 3.17
Cataract* [p<0.05]	White non-Hispanic	571	1.94	1.78 – 2.09
	Black non-Hispanic	224	2.31	2.00 – 2.61
	Hispanic	765	1.88	1.75 – 2.01
Anotia or microtia* [p<0.0001]	White non-Hispanic	653	2.21	2.04 – 2.38
	Black non-Hispanic	152	1.56	1.32 – 1.81
	Hispanic	2,069	5.09	4.87 – 5.31
Cardiac and Circulatory				
Common truncus* [p<0.01]	White non-Hispanic	187	0.63	0.54 – 0.72
	Black non-Hispanic	77	0.79	0.63 – 0.99
	Hispanic	357	0.88	0.79 – 0.97
Transposition of the great vessels* [p<0.0001]	White non-Hispanic	1,086	3.68	3.46 – 3.90
	Black non-Hispanic	223	2.30	1.99 – 2.60
	Hispanic	1,397	3.44	3.25 – 3.62

Birth Defect (Body System)	Mother's Race/Ethnicity	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Double outlet right ventricle* [p<0.001]	White non-Hispanic	604	2.05	1.88 – 2.21
	Black non-Hispanic	227	2.34	2.03 – 2.64
	Hispanic	1,030	2.53	2.38 – 2.69
Tetralogy of Fallot* [p<0.001]	White non-Hispanic	1,144	3.88	3.65 – 4.10
	Black non-Hispanic	444	4.57	4.14 – 4.99
	Hispanic	1,538	3.78	3.59 – 3.97
Ventricular septal defect* [p<0.0001]	White non-Hispanic	16,217	54.97	54.12 – 55.81
	Black non-Hispanic	4,678	48.14	46.77 – 49.52
	Hispanic	28,376	69.77	68.96 – 70.59
Atrial septal defect* [p<0.0001]	White non-Hispanic	19,435	65.88	64.95 – 66.80
	Black non-Hispanic	7,236	74.47	72.76 – 76.19
	Hispanic	30,745	75.60	74.75 – 76.44
Atrioventricular septal defect (endocardial cushion defect)* [p<0.0001]	White non-Hispanic	1,393	4.72	4.47 – 4.97
	Black non-Hispanic	502	5.17	4.71 – 5.62
	Hispanic	1,647	4.05	3.85 – 4.25
Pulmonary valve atresia or stenosis* [p<0.0001]	White non-Hispanic	2,631	8.92	8.58 – 9.26
	Black non-Hispanic	1,072	11.03	10.37 – 11.69
	Hispanic	4,358	10.72	10.40 – 11.03
Tricuspid valve atresia or stenosis* [p<0.01]	White non-Hispanic	508	1.72	1.57 – 1.87
	Black non-Hispanic	218	2.24	1.95 – 2.54
	Hispanic	783	1.93	1.79 – 2.06
Ebstein anomaly* [p<0.0001]	White non-Hispanic	213	0.72	0.63 – 0.82
	Black non-Hispanic	40	0.41	0.29 – 0.56
	Hispanic	354	0.87	0.78 – 0.96
Aortic valve stenosis* [p<0.0001]	White non-Hispanic	814	2.76	2.57 – 2.95
	Black non-Hispanic	137	1.41	1.17 – 1.65
	Hispanic	1,005	2.47	2.32 – 2.62
Hypoplastic left heart syndrome* [p<0.001]	White non-Hispanic	761	2.58	2.40 – 2.76
	Black non-Hispanic	222	2.28	1.98 – 2.59
	Hispanic	859	2.11	1.97 – 2.25
Patent ductus arteriosus* [p<0.0001]	White non-Hispanic	15,405	52.22	51.39 – 53.04
	Black non-Hispanic	5,437	55.96	54.47 – 57.44
	Hispanic	26,209	64.45	63.67 – 65.23
Coarctation of the aorta* [p<0.0001]	White non-Hispanic	1,713	5.81	5.53 – 6.08
	Black non-Hispanic	374	3.85	3.46 – 4.24
	Hispanic	2,204	5.42	5.19 – 5.65

Birth Defect (Body System)	Mother's Race/Ethnicity	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Respiratory				
Choanal atresia or stenosis* [p<0.05]	White non-Hispanic	424	1.44	1.30 – 1.57
	Black non-Hispanic	128	1.32	1.09 – 1.55
	Hispanic	490	1.20	1.10 – 1.31
Agenesis, aplasia, or hypoplasia of the lung* [p<0.0001]	White non-Hispanic	747	2.53	2.35 – 2.71
	Black non-Hispanic	326	3.36	2.99 – 3.72
	Hispanic	1,348	3.31	3.14 – 3.49
Oral Clefts				
Cleft palate alone (without cleft lip)* [p<0.0001]	White non-Hispanic	1,971	6.68	6.39 – 6.98
	Black non-Hispanic	436	4.49	4.07 – 4.91
	Hispanic	2,309	5.68	5.45 – 5.91
Cleft lip with or without cleft palate* [p<0.0001]	White non-Hispanic	3,251	11.02	10.64 – 11.40
	Black non-Hispanic	706	7.27	6.73 – 7.80
	Hispanic	4,656	11.45	11.12 – 11.78
Gastrointestinal				
Tracheoesophageal fistula/esophageal atresia* [p<0.001]	White non-Hispanic	733	2.48	2.30 – 2.66
	Black non-Hispanic	183	1.88	1.61 – 2.16
	Hispanic	849	2.09	1.95 – 2.23
Pyloric stenosis* [p<0.0001]	White non-Hispanic	5,317	18.02	17.54 – 18.51
	Black non-Hispanic	652	6.71	6.20 – 7.23
	Hispanic	7,380	18.15	17.73 – 18.56
Stenosis or atresia of the small intestine	White non-Hispanic	964	3.27	3.06 – 3.47
	Black non-Hispanic	337	3.47	3.10 – 3.84
	Hispanic	1,461	3.59	3.41 – 3.78
Stenosis or atresia of large intestine, rectum, or anal canal* [p<0.0001]	White non-Hispanic	1,499	5.08	4.82 – 5.34
	Black non-Hispanic	406	4.18	3.77 – 4.58
	Hispanic	2,377	5.84	5.61 – 6.08
Hirschsprung disease* [p<0.0001]	White non-Hispanic	508	1.72	1.57 – 1.87
	Black non-Hispanic	232	2.39	2.08 – 2.69
	Hispanic	385	0.95	0.85 – 1.04
Biliary atresia* [p<0.001]	White non-Hispanic	165	0.56	0.47 – 0.64
	Black non-Hispanic	92	0.95	0.76 – 1.16
	Hispanic	287	0.71	0.62 – 0.79
Genitourinary				
Hypospadias (among males)* [p<0.0001]	White non-Hispanic	12,943	85.55	84.08 – 87.02
	Black non-Hispanic	3,708	75.01	72.59 – 77.42
	Hispanic	8,700	41.95	41.07 – 42.83
Epispadias* [p<0.0001]	White non-Hispanic	350	1.19	1.06 – 1.31
	Black non-Hispanic	109	1.12	0.91 – 1.33
	Hispanic	323	0.79	0.71 – 0.88

Birth Defect (Body System)	Mother's Race/Ethnicity	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Renal agenesis or dysgenesis* [p<0.05]	White non-Hispanic	1,828	6.20	5.91 – 6.48
	Black non-Hispanic	625	6.43	5.93 – 6.94
	Hispanic	2,739	6.74	6.48 – 6.99
Bladder exstrophy* [p<0.0001]	White non-Hispanic	84	0.28	0.23 – 0.35
	Black non-Hispanic	18	0.19	0.11 – 0.29
	Hispanic	38	0.09	0.07 – 0.13
Musculoskeletal				
Congenital hip dislocation without hip dysplasia* [p<0.0001]	White non-Hispanic	885	3.00	2.80 – 3.20
	Black non-Hispanic	132	1.36	1.13 – 1.59
	Hispanic	1,022	2.51	2.36 – 2.67
Talipes equinovarus/clubfoot	White non-Hispanic	5,058	17.14	16.67 – 17.62
	Black non-Hispanic	1,602	16.49	15.68 – 17.29
	Hispanic	6,794	16.71	16.31 – 17.10
Reduction defects of the upper limbs	White non-Hispanic	1,225	4.15	3.92 – 4.38
	Black non-Hispanic	416	4.28	3.87 – 4.69
	Hispanic	1,718	4.22	4.02 – 4.42
Reduction defects of the lower limbs* [p<0.0001]	White non-Hispanic	561	1.90	1.74 – 2.06
	Black non-Hispanic	256	2.63	2.31 – 2.96
	Hispanic	778	1.91	1.78 – 2.05
Craniosynostosis* [p<0.0001]	White non-Hispanic	2,107	7.14	6.84 – 7.45
	Black non-Hispanic	243	2.50	2.19 – 2.82
	Hispanic	2,199	5.41	5.18 – 5.63
Achondroplasia* [p<0.0001]	White non-Hispanic	135	0.46	0.38 – 0.53
	Black non-Hispanic	39	0.40	0.29 – 0.55
	Hispanic	108	0.27	0.22 – 0.32
Diaphragmatic hernia* [p<0.01]	White non-Hispanic	838	2.84	2.65 – 3.03
	Black non-Hispanic	223	2.30	1.99 – 2.60
	Hispanic	1,197	2.94	2.78 – 3.11
Omphalocele	White non-Hispanic	661	2.24	2.07 – 2.41
	Black non-Hispanic	234	2.41	2.10 – 2.72
	Hispanic	837	2.06	1.92 – 2.20
Gastroschisis * [p<0.0001]	White non-Hispanic	1,493	5.06	4.80 – 5.32
	Black non-Hispanic	330	3.40	3.03 – 3.76
	Hispanic	2,376	5.84	5.61 – 6.08
Chromosomal				
Trisomy 21 (Down syndrome)* [p<0.0001]	White non-Hispanic	3,710	12.58	12.17 – 12.98
	Black non-Hispanic	1,001	10.30	9.66 – 10.94
	Hispanic	6,448	15.86	15.47 – 16.24
Trisomy 13 (Patau syndrome)	White non-Hispanic	346	1.17	1.05 – 1.30
	Black non-Hispanic	129	1.33	1.10 – 1.56
	Hispanic	440	1.08	0.98 – 1.18

Birth Defect (Body System)	Mother's Race/Ethnicity	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Trisomy 18 (Edwards syndrome)	White non-Hispanic	716	2.43	2.25 – 2.60
	Black non-Hispanic	265	2.73	2.40 – 3.06
	Hispanic	1,011	2.49	2.33 – 2.64
Infants and fetuses with regular reportable birth defects* [p<0.0001]	White non-Hispanic	149,553	506.92	504.35 – 509.49
	Black non-Hispanic	49,687	511.37	506.87 – 515.86
	Hispanic	198,872	489.01	486.86 – 491.16

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

*Statistically significant by Poisson regression [p<0.05].

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report

Table 5. Prevalence of Selected Birth Defects by Infant or Fetal Sex, Texas, 1999–2020

Birth Defect (Body System)	Sex	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System				
Anencephaly* [p<0.0001]	Male	886	2.05	1.92 – 2.19
	Female	1,047	2.54	2.38 – 2.69
Spina bifida without anencephaly	Male	1,529	3.54	3.37 – 3.72
	Female	1,573	3.81	3.62 – 4.00
Encephalocele	Male	379	0.88	0.79 – 0.97
	Female	416	1.01	0.91 – 1.10
Microcephaly, severe (head circumference <3rd percentile)* [p<0.0001]	Male	1,878	4.35	4.15 – 4.55
	Female	2,409	5.83	5.60 – 6.07
Holoprosencephaly* [p<0.0001]	Male	370	0.86	0.77 – 0.94
	Female	502	1.22	1.11 – 1.32
Hydrocephaly without spina bifida* [p<0.0001]	Male	3,838	8.89	8.61 – 9.17
	Female	2,943	7.13	6.87 – 7.39
Eye and Ear				
Anophthalmia	Male	111	0.26	0.21 – 0.31
	Female	126	0.31	0.25 – 0.36
Microphthalmia* [p=0.0003]	Male	1,090	2.53	2.38 – 2.68
	Female	1,214	2.94	2.77 – 3.11
Cataract	Male	828	1.92	1.79 – 2.05
	Female	802	1.94	1.81 – 2.08
Anotia or microtia* [p<0.0001]	Male	1,696	3.93	3.74 – 4.12
	Female	1,299	3.15	2.98 – 3.32
Cardiac and Circulatory				
Common truncus	Male	323	0.75	0.67 – 0.83
	Female	322	0.78	0.69 – 0.87
Transposition of the great vessels* [p<0.0001]	Male	1,851	4.29	4.09 – 4.48
	Female	988	2.39	2.24 – 2.54
Double outlet right ventricle* [p<0.0001]	Male	1,121	2.60	2.45 – 2.75
	Female	826	2.00	1.86 – 2.14
Tetralogy of Fallot* [p<0.0001]	Male	1,817	4.21	4.02 – 4.40
	Female	1,516	3.67	3.49 – 3.86
Ventricular septal defect* [p<0.0001]	Male	23,482	54.41	53.71 – 55.10
	Female	28,040	67.91	67.12 – 68.71
Atrial septal defect* [p=0.0002]	Male	30,193	69.96	69.17 – 70.74
	Female	29,788	72.15	71.33 – 72.97
Atrioventricular septal defect (endocardial cushion defect)* [p<0.0001]	Male	1,758	4.07	3.88 – 4.26
	Female	1,916	4.64	4.43 – 4.85

Birth Defect (Body System)	Sex	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Pulmonary valve atresia or stenosis* [p<0.0001]	Male	3,865	8.96	8.67 – 9.24
	Female	4,532	10.98	10.66 – 11.30
Tricuspid valve atresia or stenosis	Male	848	1.96	1.83 – 2.10
	Female	742	1.80	1.67 – 1.93
Ebstein anomaly	Male	320	0.74	0.66 – 0.82
	Female	319	0.77	0.69 – 0.86
Aortic valve stenosis* [p<0.0001]	Male	1,251	2.90	2.74 – 3.06
	Female	778	1.88	1.75 – 2.02
Hypoplastic left heart syndrome* [p<0.0001]	Male	1,153	2.67	2.52 – 2.83
	Female	740	1.79	1.66 – 1.92
Patent ductus arteriosus	Male	25,227	58.45	57.73 – 59.17
	Female	24,030	58.20	57.47 – 58.94
Coarctation of the aorta* [p<0.0001]	Male	2,590	6.00	5.77 – 6.23
	Female	1,877	4.55	4.34 – 4.75
Respiratory				
Choanal atresia or stenosis	Male	533	1.23	1.13 – 1.34
	Female	540	1.31	1.20 – 1.42
Agenesis, aplasia, or hypoplasia of the lung* [p<0.0001]	Male	1,409	3.26	3.09 – 3.44
	Female	1,084	2.63	2.47 – 2.78
Oral Clefts				
Cleft palate alone (without cleft lip)* [p<0.0001]	Male	2,228	5.16	4.95 – 5.38
	Female	2,771	6.71	6.46 – 6.96
Cleft lip with or without cleft palate* [p<0.0001]	Male	5,476	12.69	12.35 – 13.02
	Female	3,572	8.65	8.37 – 8.94
Gastrointestinal				
Tracheoesophageal fistula/esophageal atresia	Male	976	2.26	2.12 – 2.40
	Female	866	2.10	1.96 – 2.24
Pyloric stenosis* [p<0.0001]	Male	11,248	26.06	25.58 – 26.54
	Female	2,339	5.67	5.44 – 5.89
Stenosis or atresia of the small intestine* [p=0.0023]	Male	1,387	3.21	3.04 – 3.38
	Female	1,487	3.60	3.42 – 3.78
Stenosis or atresia of large intestine, rectum, or anal canal* [p<0.0001]	Male	2,451	5.68	5.45 – 5.90
	Female	1,969	4.77	4.56 – 4.98
Hirschsprung disease* [p<0.0001]	Male	928	2.15	2.01 – 2.29
	Female	284	0.69	0.61 – 0.77
Biliary atresia* [p<0.0001]	Male	251	0.58	0.51 – 0.65
	Female	352	0.85	0.76 – 0.94
Genitourinary				
Hypospadias (among males)* [p<0.0001]	Male	26,799	62.09	61.35 – 62.84
	Female	0	0.00	0.00 – 0.01

Birth Defect (Body System)	Sex	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Epispadias* [p<0.0001]	Male	809	1.87	1.75 – 2.00
	Female	9	0.02	0.01 – 0.04
Renal agenesis or dysgenesis* [p<0.0001]	Male	3,200	7.41	7.16 – 7.67
	Female	2,224	5.39	5.16 – 5.61
Bladder exstrophy	Male	77	0.18	0.14 – 0.22
	Female	67	0.16	0.13 – 0.21
Musculoskeletal				
Congenital hip dislocation without hip dysplasia* [p<0.0001]	Male	646	1.50	1.38 – 1.61
	Female	1,471	3.56	3.38 – 3.74
Talipes equinovarus/clubfoot* [p<0.0001]	Male	8,558	19.83	19.41 – 20.25
	Female	5,398	13.07	12.73 – 13.42
Reduction defects of the upper limbs* [p<0.0001]	Male	1,906	4.42	4.22 – 4.61
	Female	1,564	3.79	3.60 – 3.98
Reduction defects of the lower limbs* [p=0.0272]	Male	875	2.03	1.89 – 2.16
	Female	750	1.82	1.69 – 1.95
Craniosynostosis* [p<0.0001]	Male	3,052	7.07	6.82 – 7.32
	Female	1,663	4.03	3.83 – 4.22
Achondroplasia	Male	146	0.34	0.28 – 0.39
	Female	161	0.39	0.33 – 0.45
Diaphragmatic hernia* [p<0.0001]	Male	1,335	3.09	2.93 – 3.26
	Female	1,017	2.46	2.31 – 2.61
Omphalocele* [p<0.0001]	Male	998	2.31	2.17 – 2.46
	Female	764	1.85	1.72 – 1.98
Gastroschisis	Male	2,226	5.16	4.94 – 5.37
	Female	2,058	4.98	4.77 – 5.20
Chromosomal				
Trisomy 21 (Down syndrome)* [p<0.0001]	Male	6,242	14.46	14.10 – 14.82
	Female	5,384	13.04	12.69 – 13.39
Trisomy 13 (Patau syndrome)	Male	498	1.15	1.05 – 1.26
	Female	452	1.09	0.99 – 1.20
Trisomy 18 (Edwards syndrome)* [p<0.0001]	Male	889	2.06	1.92 – 2.20
	Female	1,176	2.85	2.69 – 3.01
Infants and fetuses with regular reportable birth defects* [p<0.0001]	Male	249,248	577.50	575.23 – 579.76
	Female	169,280	410.00	408.05 – 411.95

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

*Statistically significant by Poisson regression [p<0.05].

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report
Table 6. Pregnancy Outcome Distribution for Selected Birth Defects, Texas, 1999–2020

	Live Birth		Spontaneous Fetal Death		Induced Pregnancy Termination		Unspecified Fetal Death/Termination	
Birth Defect (Body System)	Cases	% of Total	Cases	% of Total	Cases	% of Total	Cases	% of Total
Central Nervous System								
Anencephaly	784	37.25%	669	31.78%	624	29.64%	28	1.33%
Spina bifida without anencephaly	2,868	91.40%	122	3.89%	143	4.56%	5	0.16%
Encephalocele	631	77.52%	85	10.44%	95	11.67%	3	0.37%
Microcephaly, severe (head circ. <3rd percentile)	4,262	99.42%	25	0.58%	0	0.00%	0	0.00%
Holoprosencephaly	755	85.31%	63	7.12%	67	7.57%	0	0.00%
Hydrocephaly without spina bifida	6,543	96.19%	167	2.46%	84	1.24%	8	0.12%
Eye and Ear								
Anophthalmia	188	76.42%	33	13.42%	23	9.35%	2	0.81%
Microphthalmia	2,266	98.18%	28	1.21%	13	0.56%	1	0.04%
Cataract	1,628	99.88%	2	0.12%	0	0.00%	0	0.00%
Anotia or microtia	2,943	98.00%	44	1.47%	15	0.50%	1	0.03%
Cardiac and Circulatory								
Common truncus	624	96.74%	18	2.79%	3	0.47%	0	0.00%
Transposition of the great vessels	2,816	99.09%	20	0.70%	5	0.18%	1	0.04%
Double outlet right ventricle	1,931	99.13%	14	0.72%	2	0.10%	1	0.05%
Tetralogy of Fallot	3,313	99.28%	22	0.66%	2	0.06%	0	0.00%
Ventricular septal defect	51,375	99.67%	115	0.22%	52	0.10%	5	0.01%
Atrial septal defect	59,908	99.85%	74	0.12%	13	0.02%	1	0.00%
Atrioventricular septal defect (endocardial cushion defect)	3,622	98.40%	37	1.01%	19	0.52%	3	0.08%
Pulmonary valve atresia or stenosis	8,373	99.68%	21	0.25%	6	0.07%	0	0.00%
Tricuspid valve atresia or stenosis	1,580	99.31%	9	0.57%	1	0.06%	1	0.06%
Ebstein anomaly	629	98.44%	8	1.25%	2	0.31%	0	0.00%
Aortic valve stenosis	2,015	99.26%	9	0.44%	4	0.20%	2	0.10%
Hypoplastic left heart syndrome	1,866	98.37%	20	1.05%	9	0.47%	2	0.11%
Patent ductus arteriosus	49,255	99.96%	16	0.03%	2	0.00%	0	0.00%
Coarctation of the aorta	4,426	99.06%	37	0.83%	5	0.11%	0	0.00%

Birth Defect (Body System)	Live Birth		Spontaneous Fetal Death		Induced Pregnancy Termination		Unspecified Fetal Death/Termination	
	Cases	% of Total	Cases	% of Total	Cases	% of Total	Cases	% of Total
Respiratory								
Choanal atresia or stenosis	1,057	98.23%	14	1.30%	4	0.37%	1	0.09%
Agenesis, aplasia, or hypoplasia of the lung	2,234	88.79%	182	7.23%	95	3.78%	5	0.20%
Oral Clefts								
Cleft palate alone (without cleft lip)	4,857	96.89%	111	2.21%	41	0.82%	4	0.08%
Cleft lip with or without cleft palate	8,474	93.38%	413	4.55%	175	1.93%	13	0.14%
Gastrointestinal								
Tracheoesophageal fistula/esophageal atresia	1,830	99.13%	14	0.76%	2	0.11%	0	0.00%
Pyloric stenosis	13,581	99.95%	6	0.04%	1	0.01%	0	0.00%
Stenosis or atresia of the small intestine	2,834	98.57%	35	1.22%	2	0.07%	4	0.14%
Stenosis or atresia of large intestine, rectum, anal canal	4,246	94.46%	169	3.76%	72	1.60%	8	0.18%
Hirschsprung disease	1,213	100.0%	0	0.00%	0	0.00%	0	0.00%
Biliary atresia	600	99.50%	3	0.50%	0	0.00%	0	0.00%
Genitourinary								
Hypospadias	26,802	99.91%	16	0.06%	8	0.03%	0	0.00%
Epispadias	820	100.0%	0	0.00%	0	0.00%	0	0.00%
Renal agenesis or dysgenesis	5,108	93.43%	196	3.59%	152	2.78%	11	0.20%
Bladder exstrophy	141	95.27%	5	3.38%	1	0.68%	1	0.68%
Musculoskeletal								
Congenital hip dislocation without hip dysplasia	2,107	99.29%	12	0.57%	2	0.09%	1	0.05%
Talipes equinovarus/clubfoot	13,339	95.18%	468	3.34%	193	1.38%	14	0.10%
Reduction defects of the upper limbs	3,203	91.49%	204	5.83%	86	2.46%	8	0.23%
Reduction defects of the lower limbs	1,442	86.97%	145	8.75%	66	3.98%	5	0.30%
Craniosynostosis	4,709	99.85%	4	0.09%	3	0.06%	0	0.00%
Achondroplasia	303	98.70%	1	0.33%	2	0.65%	1	0.33%
Diaphragmatic hernia	2,286	96.91%	47	1.99%	23	0.98%	3	0.13%
Omphalocele	1,396	76.66%	281	15.43%	134	7.36%	10	0.55%
Gastroschisis	3,959	91.73%	287	6.65%	64	1.48%	6	0.14%

Birth Defect (Body System)	Live Birth		Spontaneous Fetal Death		Induced Pregnancy Termination		Unspecified Fetal Death/Termination	
	Cases	% of Total	Cases	% of Total	Cases	% of Total	Cases	% of Total
Chromosomal								
Trisomy 21 (Down syndrome)	11,012	94.18%	364	3.11%	300	2.57%	17	0.15%
Trisomy 13 (Patau syndrome)	648	66.80%	180	18.56%	137	14.12%	5	0.52%
Trisomy 18 (Edwards syndrome)	1,190	56.03%	535	25.19%	381	17.94%	18	0.85%
Infants & fetuses with regular reportable birth defects	409,509	97.57%	6,873	1.64%	3,112	0.74%	231	0.06%

Please see the Methods section of the Annual Report for additional information: https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report
Table R1. Prevalence of Selected Birth Defects, Region 1, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	54	1.98	1.49 – 2.59
Spina bifida without anencephaly	95	3.49	2.82 – 4.26
Encephalocele	29	1.06	0.71 – 1.53
Microcephaly, severe (head circ. <3rd percentile)	95	3.49	2.82 – 4.26
Holoprosencephaly	39	1.43	1.02 – 1.96
Hydrocephaly without spina bifida	227	8.33	7.25 – 9.42
Eye and Ear			
Anophthalmia	8	0.29	0.13 – 0.58
Microphthalmia	67	2.46	1.91 – 3.12
Cataract	44	1.61	1.17 – 2.17
Anotia or microtia	98	3.60	2.92 – 4.38
Cardiac and Circulatory			
Common truncus	18	0.66	0.39 – 1.04
Transposition of the great vessels	85	3.12	2.49 – 3.86
Double outlet right ventricle	62	2.28	1.74 – 2.92
Tetralogy of Fallot	108	3.96	3.22 – 4.71
Ventricular septal defect	1,607	58.98	56.10 – 61.86
Atrial septal defect	2,637	96.78	93.09 – 100.48
Atrioventricular septal defect (endocardial cushion defect)	135	4.95	4.12 – 5.79
Pulmonary valve atresia or stenosis	202	7.41	6.39 – 8.44
Tricuspid valve atresia or stenosis	66	2.42	1.87 – 3.08
Ebstein anomaly	21	0.77	0.48 – 1.18
Aortic valve stenosis	53	1.95	1.46 – 2.54
Hypoplastic left heart syndrome	67	2.46	1.91 – 3.12
Patent ductus arteriosus	1,959	71.90	68.72 – 75.08
Coarctation of the aorta	184	6.75	5.78 – 7.73
Respiratory			
Choanal atresia or stenosis	32	1.17	0.80 – 1.66
Agenesis, aplasia, or hypoplasia of the lung	57	2.09	1.58 – 2.71
Oral Clefts			
Cleft palate alone (without cleft lip)	164	6.02	5.10 – 6.94
Cleft lip with or without cleft palate	367	13.47	12.09 – 14.85
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	60	2.20	1.68 – 2.83
Pyloric stenosis	468	17.18	15.62 – 18.73
Stenosis or atresia of the small intestine	98	3.60	2.92 – 4.38
Stenosis or atresia of large intestine, rectum, or anal	156	5.73	4.83 – 6.62
Hirschsprung disease	36	1.32	0.93 – 1.83
Biliary atresia	21	0.77	0.48 – 1.18

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	788	56.62	52.66 – 60.57
Epispadias	25	0.92	0.59 – 1.35
Renal agenesis or dysgenesis	198	7.27	6.25 – 8.28
Bladder exstrophy	1	0.04	0.00 – 0.20
Musculoskeletal			
Congenital hip dislocation without hip dysplasia	63	2.31	1.78 – 2.96
Talipes equinovarus/clubfoot	599	21.98	20.22 – 23.75
Reduction defects of the upper limbs	122	4.48	3.68 – 5.27
Reduction defects of the lower limbs	66	2.42	1.87 – 3.08
Craniosynostosis	193	7.08	6.08 – 8.08
Achondroplasia	14	0.51	0.28 – 0.86
Diaphragmatic hernia	85	3.12	2.49 – 3.86
Omphalocele	42	1.54	1.11 – 2.08
Gastroschisis	176	6.46	5.51 – 7.41
Chromosomal			
Trisomy 21 (Down syndrome)	328	12.04	10.74 – 13.34
Trisomy 13 (Patau syndrome)	33	1.21	0.83 – 1.70
Trisomy 18 (Edwards syndrome)	56	2.06	1.55 – 2.67
Infants & fetuses with regular reportable birth defects	13,376	490.93	482.61 – 499.25

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report
Table R2. Prevalence of Selected Birth Defects, Region 2, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	43	2.74	1.98 – 3.69
Spina bifida without anencephaly	75	4.78	3.76 – 5.99
Encephalocele	14	0.89	0.49 – 1.50
Microcephaly, severe (head circ. <3rd percentile)	49	3.12	2.31 – 4.13
Holoprosencephaly	15	0.96	0.53 – 1.58
Hydrocephaly without spina bifida	121	7.71	6.34 – 9.08
Eye and Ear			
Anophthalmia	2	0.13	0.02 – 0.46
Microphthalmia	42	2.68	1.93 – 3.62
Cataract	28	1.78	1.19 – 2.58
Anotia or microtia	49	3.12	2.31 – 4.13
Cardiac and Circulatory			
Common truncus	14	0.89	0.49 – 1.50
Transposition of the great vessels	59	3.76	2.86 – 4.85
Double outlet right ventricle	36	2.29	1.61 – 3.18
Tetralogy of Fallot	52	3.31	2.47 – 4.34
Ventricular septal defect	893	56.89	53.16 – 60.63
Atrial septal defect	1,469	93.59	88.81 – 98.38
Atrioventricular septal defect (endocardial cushion defect)	65	4.14	3.20 – 5.28
Pulmonary valve atresia or stenosis	156	9.94	8.38 – 11.50
Tricuspid valve atresia or stenosis	33	2.10	1.45 – 2.95
Ebstein anomaly	11	0.70	0.35 – 1.25
Aortic valve stenosis	39	2.48	1.77 – 3.40
Hypoplastic left heart syndrome	50	3.19	2.36 – 4.20
Patent ductus arteriosus	820	52.24	48.67 – 55.82
Coarctation of the aorta	84	5.35	4.27 – 6.63
Respiratory			
Choanal atresia or stenosis	14	0.89	0.49 – 1.50
Agenesis, aplasia, or hypoplasia of the lung	28	1.78	1.19 – 2.58
Oral Clefts			
Cleft palate alone (without cleft lip)	115	7.33	5.99 – 8.67
Cleft lip with or without cleft palate	209	13.32	11.51 – 15.12
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	39	2.48	1.77 – 3.40
Pyloric stenosis	336	21.41	19.12 – 23.70
Stenosis or atresia of the small intestine	63	4.01	3.08 – 5.14
Stenosis or atresia of large intestine, rectum, anal canal	91	5.80	4.67 – 7.12
Hirschsprung disease	25	1.59	1.03 – 2.35
Biliary atresia	10	0.64	0.31 – 1.17

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	486	60.44	55.07 – 65.81
Epispadias	8	0.51	0.22 – 1.00
Renal agenesis or dysgenesis	72	4.59	3.59 – 5.78
Bladder exstrophy	3	0.19	0.04 – 0.56
Musculoskeletal			
Congenital hip dislocation without hip dysplasia	37	2.36	1.66 – 3.25
Talipes equinovarus/clubfoot	288	18.35	16.23 – 20.47
Reduction defects of the upper limbs	66	4.20	3.25 – 5.35
Reduction defects of the lower limbs	22	1.40	0.88 – 2.12
Craniosynostosis	118	7.52	6.16 – 8.87
Achondroplasia	9	0.57	0.26 – 1.09
Diaphragmatic hernia	48	3.06	2.25 – 4.05
Omphalocele	32	2.04	1.39 – 2.88
Gastroschisis	109	6.94	5.64 – 8.25
Chromosomal			
Trisomy 21 (Down syndrome)	197	12.55	10.80 – 14.30
Trisomy 13 (Patau syndrome)	16	1.02	0.58 – 1.66
Trisomy 18 (Edwards syndrome)	27	1.72	1.13 – 2.50
Infants & fetuses with regular reportable birth defects	6,892	439.10	428.73 – 449.46

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report
Table R3. Prevalence of Selected Birth Defects, Region 3, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	634	2.82	2.60 – 3.03
Spina bifida without anencephaly	873	3.88	3.62 – 4.13
Encephalocele	247	1.10	0.96 – 1.23
Microcephaly, severe (head circ. <3rd percentile)	1,676	7.44	7.09 – 7.80
Holoprosencephaly	232	1.03	0.90 – 1.16
Hydrocephaly without spina bifida	1,957	8.69	8.31 – 9.08
Eye and Ear			
Anophthalmia	75	0.33	0.26 – 0.42
Microphthalmia	638	2.83	2.61 – 3.05
Cataract	644	2.86	2.64 – 3.08
Anotia or microtia	836	3.71	3.46 – 3.96
Cardiac and Circulatory			
Common truncus	145	0.64	0.54 – 0.75
Transposition of the great vessels	787	3.49	3.25 – 3.74
Double outlet right ventricle	537	2.38	2.18 – 2.59
Tetralogy of Fallot	872	3.87	3.62 – 4.13
Ventricular septal defect	13,760	61.10	60.08 – 62.13
Atrial septal defect	15,510	68.88	67.79 – 69.96
Atrioventricular septal defect (endocardial cushion defect)	1,078	4.79	4.50 – 5.07
Pulmonary valve atresia or stenosis	2,459	10.92	10.49 – 11.35
Tricuspid valve atresia or stenosis	433	1.92	1.74 – 2.10
Ebstein anomaly	137	0.61	0.51 – 0.71
Aortic valve stenosis	517	2.30	2.10 – 2.49
Hypoplastic left heart syndrome	556	2.47	2.26 – 2.67
Patent ductus arteriosus	12,864	57.13	56.14 – 58.11
Coarctation of the aorta	1,125	5.00	4.70 – 5.29
Respiratory			
Choanal atresia or stenosis	341	1.51	1.35 – 1.68
Agenesis, aplasia, or hypoplasia of the lung	615	2.73	2.52 – 2.95
Oral Clefts			
Cleft palate alone (without cleft lip)	1,436	6.38	6.05 – 6.71
Cleft lip with or without cleft palate	2,441	10.84	10.41 – 11.27
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	531	2.36	2.16 – 2.56
Pyloric stenosis	3,566	15.84	15.32 – 16.36
Stenosis or atresia of the small intestine	815	3.62	3.37 – 3.87
Stenosis or atresia of large intestine, rectum, anal canal	1,115	4.95	4.66 – 5.24
Hirschsprung disease	350	1.55	1.39 – 1.72
Biliary atresia	168	0.75	0.63 – 0.86

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	8,084	70.12	68.59 – 71.65
Epispadias	214	0.95	0.82 – 1.08
Renal agenesis or dysgenesis	1,512	6.71	6.38 – 7.05
Bladder exstrophy	44	0.20	0.14 – 0.26
Musculoskeletal			
Congenital hip dislocation without hip dysplasia	614	2.73	2.51 – 2.94
Talipes equinovarus/clubfoot	3,830	17.01	16.47 – 17.55
Reduction defects of the upper limbs	1,050	4.66	4.38 – 4.94
Reduction defects of the lower limbs	469	2.08	1.89 – 2.27
Craniosynostosis	1,441	6.40	6.07 – 6.73
Achondroplasia	92	0.41	0.33 – 0.50
Diaphragmatic hernia	628	2.79	2.57 – 3.01
Omphalocele	550	2.44	2.24 – 2.65
Gastroschisis	1,020	4.53	4.25 – 4.81
Chromosomal			
Trisomy 21 (Down syndrome)	3,430	15.23	14.72 – 15.74
Trisomy 13 (Patau syndrome)	305	1.35	1.20 – 1.51
Trisomy 18 (Edwards syndrome)	689	3.06	2.83 – 3.29
Infants & fetuses with regular reportable birth defects	130,040	577.47	574.33 – 580.61

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report
Table R4. Prevalence of Selected Birth Defects, Region 4, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	105	3.32	2.69 – 3.96
Spina bifida without anencephaly	107	3.38	2.74 – 4.03
Encephalocele	27	0.85	0.56 – 1.24
Microcephaly, severe (head circ. <3rd percentile)	128	4.05	3.35 – 4.75
Holoprosencephaly	26	0.82	0.54 – 1.20
Hydrocephaly without spina bifida	259	8.19	7.19 – 9.19
Eye and Ear			
Anophthalmia	5	0.16	0.05 – 0.37
Microphthalmia	74	2.34	1.84 – 2.94
Cataract	56	1.77	1.34 – 2.30
Anotia or microtia	88	2.78	2.23 – 3.43
Cardiac and Circulatory			
Common truncus	25	0.79	0.51 – 1.17
Transposition of the great vessels	101	3.19	2.57 – 3.82
Double outlet right ventricle	56	1.77	1.34 – 2.30
Tetralogy of Fallot	129	4.08	3.38 – 4.78
Ventricular septal defect	1,289	40.76	38.54 – 42.99
Atrial septal defect	1,431	45.26	42.91 – 47.60
Atrioventricular septal defect (endocardial cushion defect)	125	3.95	3.26 – 4.65
Pulmonary valve atresia or stenosis	258	8.16	7.16 – 9.15
Tricuspid valve atresia or stenosis	62	1.96	1.50 – 2.51
Ebstein anomaly	15	0.47	0.27 – 0.78
Aortic valve stenosis	57	1.80	1.37 – 2.34
Hypoplastic left heart syndrome	81	2.56	2.03 – 3.18
Patent ductus arteriosus	1,257	39.75	37.55 – 41.95
Coarctation of the aorta	145	4.59	3.84 – 5.33
Respiratory			
Choanal atresia or stenosis	49	1.55	1.15 – 2.05
Agenesis, aplasia, or hypoplasia of the lung	81	2.56	2.03 – 3.18
Oral Clefts			
Cleft palate alone (without cleft lip)	209	6.61	5.71 – 7.51
Cleft lip with or without cleft palate	347	10.97	9.82 – 12.13
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	46	1.45	1.07 – 1.94
Pyloric stenosis	563	17.80	16.33 – 19.28
Stenosis or atresia of the small intestine	103	3.26	2.63 – 3.89
Stenosis or atresia of large intestine, rectum, anal canal	131	4.14	3.43 – 4.85
Hirschsprung disease	55	1.74	1.31 – 2.26
Biliary atresia	18	0.57	0.34 – 0.90

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	1,120	69.18	65.13 – 73.23
Epispadias	21	0.66	0.41 – 1.02
Renal agenesis or dysgenesis	181	5.72	4.89 – 6.56
Bladder exstrophy	8	0.25	0.11 – 0.50
Musculoskeletal			
Congenital hip dislocation without hip dysplasia	44	1.39	1.01 – 1.87
Talipes equinovarus/clubfoot	522	16.51	15.09 – 17.92
Reduction defects of the upper limbs	131	4.14	3.43 – 4.85
Reduction defects of the lower limbs	77	2.44	1.92 – 3.04
Craniosynostosis	158	5.00	4.22 – 5.78
Achondroplasia	13	0.41	0.22 – 0.70
Diaphragmatic hernia	77	2.44	1.92 – 3.04
Omphalocele	63	1.99	1.53 – 2.55
Gastroschisis	164	5.19	4.39 – 5.98
Chromosomal			
Trisomy 21 (Down syndrome)	385	12.18	10.96 – 13.39
Trisomy 13 (Patau syndrome)	29	0.92	0.61 – 1.32
Trisomy 18 (Edwards syndrome)	74	2.34	1.84 – 2.94
Infants & fetuses with regular reportable birth defects	13,803	436.52	429.24 – 443.80

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

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Texas Birth Defects Registry (TBDR) Annual Report
Table R5. Prevalence of Selected Birth Defects, Region 5, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	42	1.92	1.38 – 2.59
Spina bifida without anencephaly	78	3.56	2.81 – 4.44
Encephalocele	18	0.82	0.49 – 1.30
Microcephaly, severe (head circ. <3rd percentile)	69	3.15	2.45 – 3.98
Holoprosencephaly	22	1.00	0.63 – 1.52
Hydrocephaly without spina bifida	157	7.16	6.04 – 8.28
Eye and Ear			
Anophthalmia	10	0.46	0.22 – 0.84
Microphthalmia	43	1.96	1.42 – 2.64
Cataract	32	1.46	1.00 – 2.06
Anotia or microtia	34	1.55	1.07 – 2.17
Cardiac and Circulatory			
Common truncus	18	0.82	0.49 – 1.30
Transposition of the great vessels	73	3.33	2.61 – 4.19
Double outlet right ventricle	52	2.37	1.77 – 3.11
Tetralogy of Fallot	73	3.33	2.61 – 4.19
Ventricular septal defect	950	43.34	40.59 – 46.10
Atrial septal defect	1,176	53.65	50.59 – 56.72
Atrioventricular septal defect (endocardial cushion defect)	102	4.65	3.75 – 5.56
Pulmonary valve atresia or stenosis	144	6.57	5.50 – 7.64
Tricuspid valve atresia or stenosis	33	1.51	1.04 – 2.11
Ebstein anomaly	17	0.78	0.45 – 1.24
Aortic valve stenosis	38	1.73	1.23 – 2.38
Hypoplastic left heart syndrome	44	2.01	1.46 – 2.69
Patent ductus arteriosus	792	36.13	33.62 – 38.65
Coarctation of the aorta	106	4.84	3.92 – 5.76
Respiratory			
Choanal atresia or stenosis	28	1.28	0.85 – 1.85
Agenesis, aplasia, or hypoplasia of the lung	67	3.06	2.37 – 3.88
Oral Clefts			
Cleft palate alone (without cleft lip)	131	5.98	4.95 – 7.00
Cleft lip with or without cleft palate	219	9.99	8.67 – 11.31
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	34	1.55	1.07 – 2.17
Pyloric stenosis	313	14.28	12.70 – 15.86
Stenosis or atresia of the small intestine	73	3.33	2.61 – 4.19
Stenosis or atresia of large intestine, rectum, anal canal	88	4.01	3.22 – 4.95
Hirschsprung disease	40	1.82	1.30 – 2.49
Biliary atresia	14	0.64	0.35 – 1.07

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	677	60.38	55.83 – 64.93
Epispadias	17	0.78	0.45 – 1.24
Renal agenesis or dysgenesis	129	5.89	4.87 – 6.90
Bladder exstrophy	9	0.41	0.19 – 0.78
Musculoskeletal			
Congenital hip dislocation without hip dysplasia	67	3.06	2.37 – 3.88
Talipes equinovarus/clubfoot	357	16.29	14.60 – 17.98
Reduction defects of the upper limbs	85	3.88	3.10 – 4.80
Reduction defects of the lower limbs	36	1.64	1.15 – 2.27
Craniosynostosis	90	4.11	3.30 – 5.05
Achondroplasia	9	0.41	0.19 – 0.78
Diaphragmatic hernia	63	2.87	2.21 – 3.68
Omphalocele	39	1.78	1.27 – 2.43
Gastroschisis	126	5.75	4.74 – 6.75
Chromosomal			
Trisomy 21 (Down syndrome)	193	8.81	7.56 – 10.05
Trisomy 13 (Patau syndrome)	21	0.96	0.59 – 1.46
Trisomy 18 (Edwards syndrome)	26	1.19	0.77 – 1.74
Infants & fetuses with regular reportable birth defects	7,892	360.06	352.11 – 368.00

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

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Texas Birth Defects Registry (TBDR) Annual Report
Table R6. Prevalence of Selected Birth Defects, Region 6, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	317	1.52	1.35 – 1.69
Spina bifida without anencephaly	687	3.30	3.05 – 3.54
Encephalocele	156	0.75	0.63 – 0.87
Microcephaly, severe (head circ. <3rd percentile)	876	4.20	3.92 – 4.48
Holoprosencephaly	155	0.74	0.63 – 0.86
Hydrocephaly without spina bifida	1,375	6.60	6.25 – 6.95
Eye and Ear			
Anophthalmia	46	0.22	0.16 – 0.29
Microphthalmia	497	2.38	2.17 – 2.59
Cataract	346	1.66	1.49 – 1.83
Anotia or microtia	640	3.07	2.83 – 3.31
Cardiac and Circulatory			
Common truncus	134	0.64	0.53 – 0.75
Transposition of the great vessels	688	3.30	3.05 – 3.55
Double outlet right ventricle	496	2.38	2.17 – 2.59
Tetralogy of Fallot	783	3.76	3.49 – 4.02
Ventricular septal defect	12,056	57.84	56.81 – 58.88
Atrial septal defect	13,567	65.09	64.00 – 66.19
Atrioventricular septal defect (endocardial cushion defect)	846	4.06	3.79 – 4.33
Pulmonary valve atresia or stenosis	1,652	7.93	7.54 – 8.31
Tricuspid valve atresia or stenosis	372	1.78	1.60 – 1.97
Ebstein anomaly	155	0.74	0.63 – 0.86
Aortic valve stenosis	442	2.12	1.92 – 2.32
Hypoplastic left heart syndrome	403	1.93	1.74 – 2.12
Patent ductus arteriosus	9,533	45.74	44.82 – 46.66
Coarctation of the aorta	977	4.69	4.39 – 4.98
Respiratory			
Choanal atresia or stenosis	226	1.08	0.94 – 1.23
Agenesis, aplasia, or hypoplasia of the lung	538	2.58	2.36 – 2.80
Oral Clefts			
Cleft palate alone (without cleft lip)	1,088	5.22	4.91 – 5.53
Cleft lip with or without cleft palate	1,862	8.93	8.53 – 9.34
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	390	1.87	1.69 – 2.06
Pyloric stenosis	2,901	13.92	13.41 – 14.43
Stenosis or atresia of the small intestine	572	2.74	2.52 – 2.97
Stenosis or atresia of large intestine, rectum, anal canal	1,093	5.24	4.93 – 5.56
Hirschsprung disease	251	1.20	1.06 – 1.35
Biliary atresia	133	0.64	0.53 – 0.75

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	6,804	63.97	62.45 – 65.49
Epispadias	190	0.91	0.78 – 1.04
Renal agenesis or dysgenesis	1,174	5.63	5.31 – 5.95
Bladder exstrophy	30	0.14	0.10 – 0.21
Musculoskeletal			
Congenital hip dislocation without hip dysplasia	530	2.54	2.33 – 2.76
Talipes equinovarus/clubfoot	3,254	15.61	15.08 – 16.15
Reduction defects of the upper limbs	669	3.21	2.97 – 3.45
Reduction defects of the lower limbs	293	1.41	1.24 – 1.57
Craniosynostosis	841	4.04	3.76 – 4.31
Achondroplasia	68	0.33	0.25 – 0.41
Diaphragmatic hernia	566	2.72	2.49 – 2.94
Omphalocele	388	1.86	1.68 – 2.05
Gastroschisis	847	4.06	3.79 – 4.34
Chromosomal			
Trisomy 21 (Down syndrome)	2,659	12.76	12.27 – 13.24
Trisomy 13 (Patau syndrome)	191	0.92	0.79 – 1.05
Trisomy 18 (Edwards syndrome)	421	2.02	1.83 – 2.21
Infants & fetuses with regular reportable birth defects	93,707	449.60	446.72 – 452.48

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report
Table R7. Prevalence of Selected Birth Defects, Region 7, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	239	2.55	2.23 – 2.88
Spina bifida without anencephaly	289	3.09	2.73 – 3.44
Encephalocele	77	0.82	0.65 – 1.03
Microcephaly, severe (head circ. <3rd percentile)	370	3.95	3.55 – 4.36
Holoprosencephaly	107	1.14	0.93 – 1.36
Hydrocephaly without spina bifida	685	7.32	6.77 – 7.87
Eye and Ear			
Anophthalmia	18	0.19	0.11 – 0.30
Microphthalmia	317	3.39	3.01 – 3.76
Cataract	163	1.74	1.47 – 2.01
Anotia or microtia	329	3.52	3.14 – 3.90
Cardiac and Circulatory			
Common truncus	69	0.74	0.57 – 0.93
Transposition of the great vessels	281	3.00	2.65 – 3.35
Double outlet right ventricle	183	1.96	1.67 – 2.24
Tetralogy of Fallot	351	3.75	3.36 – 4.14
Ventricular septal defect	5,208	55.65	54.13 – 57.16
Atrial septal defect	3,680	39.32	38.05 – 40.59
Atrioventricular septal defect (endocardial cushion defect)	388	4.15	3.73 – 4.56
Pulmonary valve atresia or stenosis	900	9.62	8.99 – 10.24
Tricuspid valve atresia or stenosis	148	1.58	1.33 – 1.84
Ebstein anomaly	68	0.73	0.56 – 0.92
Aortic valve stenosis	233	2.49	2.17 – 2.81
Hypoplastic left heart syndrome	195	2.08	1.79 – 2.38
Patent ductus arteriosus	4,228	45.18	43.81 – 46.54
Coarctation of the aorta	450	4.81	4.36 – 5.25
Respiratory			
Choanal atresia or stenosis	115	1.23	1.00 – 1.45
Agenesis, aplasia, or hypoplasia of the lung	283	3.02	2.67 – 3.38
Oral Clefts			
Cleft palate alone (without cleft lip)	549	5.87	5.38 – 6.36
Cleft lip with or without cleft palate	969	10.35	9.70 – 11.01
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	204	2.18	1.88 – 2.48
Pyloric stenosis	1,201	12.83	12.11 – 13.56
Stenosis or atresia of the small intestine	331	3.54	3.16 – 3.92
Stenosis or atresia of large intestine, rectum, anal canal	448	4.79	4.34 – 5.23
Hirschsprung disease	179	1.91	1.63 – 2.19
Biliary atresia	56	0.60	0.45 – 0.78

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	3,130	65.43	63.14 – 67.72
Epispadias	87	0.93	0.74 – 1.15
Renal agenesis or dysgenesis	559	5.97	5.48 – 6.47
Bladder exstrophy	21	0.22	0.14 – 0.34
Musculoskeletal			
Congenital hip dislocation without hip dysplasia	247	2.64	2.31 – 2.97
Talipes equinovarus/clubfoot	1,284	13.72	12.97 – 14.47
Reduction defects of the upper limbs	420	4.49	4.06 – 4.92
Reduction defects of the lower limbs	199	2.13	1.83 – 2.42
Craniosynostosis	476	5.09	4.63 – 5.54
Achondroplasia	34	0.36	0.25 – 0.51
Diaphragmatic hernia	262	2.80	2.46 – 3.14
Omphalocele	189	2.02	1.73 – 2.31
Gastroschisis	493	5.27	4.80 – 5.73
Chromosomal			
Trisomy 21 (Down syndrome)	1,177	12.58	11.86 – 13.29
Trisomy 13 (Patau syndrome)	95	1.02	0.82 – 1.24
Trisomy 18 (Edwards syndrome)	250	2.67	2.34 – 3.00
Infants & fetuses with regular reportable birth defects	43,159	461.14	456.79 – 465.49

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report
Table R8. Prevalence of Selected Birth Defects, Region 8, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	238	2.84	2.48 – 3.20
Spina bifida without anencephaly	347	4.14	3.71 – 4.58
Encephalocele	104	1.24	1.00 – 1.48
Microcephaly, severe (head circ. <3rd percentile)	509	6.08	5.55 – 6.61
Holoprosencephaly	98	1.17	0.95 – 1.43
Hydrocephaly without spina bifida	792	9.46	8.80 – 10.12
Eye and Ear			
Anophthalmia	26	0.31	0.20 – 0.45
Microphthalmia	273	3.26	2.87 – 3.65
Cataract	140	1.67	1.39 – 1.95
Anotia or microtia	377	4.50	4.05 – 4.96
Cardiac and Circulatory			
Common truncus	84	1.00	0.80 – 1.24
Transposition of the great vessels	317	3.79	3.37 – 4.20
Double outlet right ventricle	169	2.02	1.71 – 2.32
Tetralogy of Fallot	380	4.54	4.08 – 4.99
Ventricular septal defect	4,814	57.48	55.86 – 59.11
Atrial septal defect	5,238	62.55	60.85 – 64.24
Atrioventricular septal defect (endocardial cushion defect)	396	4.73	4.26 – 5.19
Pulmonary valve atresia or stenosis	848	10.13	9.44 – 10.81
Tricuspid valve atresia or stenosis	169	2.02	1.71 – 2.32
Ebstein anomaly	73	0.87	0.68 – 1.10
Aortic valve stenosis	230	2.75	2.39 – 3.10
Hypoplastic left heart syndrome	196	2.34	2.01 – 2.67
Patent ductus arteriosus	5,089	60.77	59.10 – 62.44
Coarctation of the aorta	445	5.31	4.82 – 5.81
Respiratory			
Choanal atresia or stenosis	102	1.22	0.98 – 1.45
Agenesis, aplasia, or hypoplasia of the lung	392	4.68	4.22 – 5.14
Oral Clefts			
Cleft palate alone (without cleft lip)	574	6.85	6.29 – 7.41
Cleft lip with or without cleft palate	1,018	12.16	11.41 – 12.90
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	208	2.48	2.15 – 2.82
Pyloric stenosis	1,477	17.64	16.74 – 18.54
Stenosis or atresia of the small intestine	331	3.95	3.53 – 4.38
Stenosis or atresia of large intestine, rectum, anal canal	546	6.52	5.97 – 7.07
Hirschsprung disease	122	1.46	1.20 – 1.72
Biliary atresia	81	0.97	0.77 – 1.20

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	2,557	59.82	57.50 – 62.13
Epispadias	110	1.31	1.07 – 1.56
Renal agenesis or dysgenesis	703	8.39	7.77 – 9.02
Bladder exstrophy	14	0.17	0.09 – 0.28
Musculoskeletal			
Congenital hip dislocation without hip dysplasia	148	1.77	1.48 – 2.05
Talipes equinovarus/clubfoot	1,483	17.71	16.81 – 18.61
Reduction defects of the upper limbs	399	4.76	4.30 – 5.23
Reduction defects of the lower limbs	227	2.71	2.36 – 3.06
Craniosynostosis	573	6.84	6.28 – 7.40
Achondroplasia	26	0.31	0.20 – 0.45
Diaphragmatic hernia	256	3.06	2.68 – 3.43
Omphalocele	197	2.35	2.02 – 2.68
Gastroschisis	529	6.32	5.78 – 6.86
Chromosomal			
Trisomy 21 (Down syndrome)	1,294	15.45	14.61 – 16.29
Trisomy 13 (Patau syndrome)	112	1.34	1.09 – 1.59
Trisomy 18 (Edwards syndrome)	232	2.77	2.41 – 3.13
Infants & fetuses with regular reportable birth defects	43,659	521.33	516.44 – 526.22

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report
Table R9. Prevalence of Selected Birth Defects, Region 9, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	53	2.60	1.95 – 3.40
Spina bifida without anencephaly	61	3.00	2.29 – 3.85
Encephalocele	22	1.08	0.68 – 1.64
Microcephaly, severe (head circ. <3rd percentile)	72	3.54	2.77 – 4.45
Holoprosencephaly	28	1.37	0.91 – 1.99
Hydrocephaly without spina bifida	187	9.18	7.87 – 10.50
Eye and Ear			
Anophthalmia	5	0.25	0.08 – 0.57
Microphthalmia	65	3.19	2.46 – 4.07
Cataract	48	2.36	1.74 – 3.12
Anotia or microtia	66	3.24	1.74 – 4.12
Cardiac and Circulatory			
Common truncus	14	0.69	0.38 – 1.15
Transposition of the great vessels	66	3.24	2.51 – 4.12
Double outlet right ventricle	41	2.01	1.44 – 2.73
Tetralogy of Fallot	76	3.73	2.94 – 4.67
Ventricular septal defect	1,190	58.43	55.11 – 61.75
Atrial septal defect	3,041	149.32	144.02 – 154.63
Atrioventricular septal defect (endocardial cushion defect)	75	3.68	2.90 – 4.62
Pulmonary valve atresia or stenosis	202	9.92	8.55 – 11.29
Tricuspid valve atresia or stenosis	31	1.52	1.03 – 2.16
Ebstein anomaly	18	0.88	0.52 – 1.40
Aortic valve stenosis	43	2.11	1.53 – 2.84
Hypoplastic left heart syndrome	54	2.65	1.99 – 3.46
Patent ductus arteriosus	1,482	72.77	69.07 – 76.48
Coarctation of the aorta	109	5.35	4.35 – 6.36
Respiratory			
Choanal atresia or stenosis	23	1.13	0.72 – 1.69
Agenesis, aplasia, or hypoplasia of the lung	45	2.21	1.61 – 2.96
Oral Clefts			
Cleft palate alone (without cleft lip)	123	6.04	4.97 – 7.11
Cleft lip with or without cleft palate	267	13.11	11.54 – 14.68
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	54	2.65	1.99 – 3.46
Pyloric stenosis	343	16.84	15.06 – 18.62
Stenosis or atresia of the small intestine	61	3.00	2.29 – 3.85
Stenosis or atresia of large intestine, rectum, anal canal	122	5.99	4.93 – 7.05
Hirschsprung disease	29	1.42	0.95 – 2.05
Biliary atresia	13	0.64	0.34 – 1.09

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	525	50.32	46.01 – 54.62
Epispadias	18	0.88	0.52 – 1.40
Renal agenesis or dysgenesis	126	6.19	5.11 – 7.27
Bladder exstrophy	2	0.10	0.01 – 0.35
Musculoskeletal			
Congenital hip dislocation without hip dysplasia	60	2.95	2.25 – 3.79
Talipes equinovarus/clubfoot	395	19.40	17.48 – 21.31
Reduction defects of the upper limbs	85	4.17	3.33 – 5.16
Reduction defects of the lower limbs	50	2.46	1.82 – 3.24
Craniosynostosis	140	6.87	5.74 – 8.01
Achondroplasia	7	0.34	0.14 – 0.71
Diaphragmatic hernia	52	2.55	1.91 – 3.35
Omphalocele	44	2.16	1.57 – 2.90
Gastroschisis	147	7.22	6.05 – 8.39
Chromosomal			
Trisomy 21 (Down syndrome)	210	10.31	8.92 – 11.71
Trisomy 13 (Patau syndrome)	27	1.33	0.87 – 1.93
Trisomy 18 (Edwards syndrome)	41	2.01	1.44 – 2.73
Infants & fetuses with regular reportable birth defects	10,249	503.26	493.52 – 513.00

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report
Table R10. Prevalence of Selected Birth Defects, Region 10, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	90	2.95	2.37 – 3.62
Spina bifida without anencephaly	107	3.50	2.84 – 4.17
Encephalocele	20	0.66	0.40 – 1.01
Microcephaly, severe (head circ. <3rd percentile)	124	4.06	3.35 – 4.78
Holoprosencephaly	38	1.24	0.88 – 1.71
Hydrocephaly without spina bifida	236	7.73	6.74 – 8.72
Eye and Ear			
Anophthalmia	4	0.13	0.04 – 0.34
Microphthalmia	83	2.72	2.17 – 3.37
Cataract	41	1.34	0.96 – 1.82
Anotia or microtia	127	4.16	3.44 – 4.88
Cardiac and Circulatory			
Common truncus	27	0.88	0.58 – 1.29
Transposition of the great vessels	66	2.16	1.67 – 2.75
Double outlet right ventricle	56	1.83	1.39 – 2.38
Tetralogy of Fallot	92	3.01	2.43 – 3.70
Ventricular septal defect	1,410	46.18	43.77 – 48.59
Atrial septal defect	1,364	44.67	42.30 – 47.04
Atrioventricular septal defect (endocardial cushion defect)	86	2.82	2.25 – 3.48
Pulmonary valve atresia or stenosis	172	5.63	4.79 – 6.48
Tricuspid valve atresia or stenosis	39	1.28	0.91 – 1.75
Ebstein anomaly	26	0.85	0.56 – 1.25
Aortic valve stenosis	73	2.39	1.87 – 3.01
Hypoplastic left heart syndrome	63	2.06	1.59 – 2.64
Patent ductus arteriosus	1,448	47.43	44.98 – 49.87
Coarctation of the aorta	147	4.81	4.04 – 5.59
Respiratory			
Choanal atresia or stenosis	25	0.82	0.53 – 1.21
Agenesis, aplasia, or hypoplasia of the lung	61	2.00	1.53 – 2.57
Oral Clefts			
Cleft palate alone (without cleft lip)	144	4.72	3.95 – 5.49
Cleft lip with or without cleft palate	369	12.09	10.85 – 13.32
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	79	2.59	2.05 – 3.22
Pyloric stenosis	553	18.11	16.60 – 19.62
Stenosis or atresia of the small intestine	101	3.31	2.66 – 3.95
Stenosis or atresia of large intestine, rectum, anal canal	168	5.50	4.67 – 6.33
Hirschsprung disease	30	0.98	0.66 – 1.40
Biliary atresia	25	0.82	0.53 – 1.21

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	666	42.83	39.58 – 46.09
Epispadias	51	1.67	1.24 – 2.20
Renal agenesis or dysgenesis	194	6.35	5.46 – 7.25
Bladder exstrophy	2	0.07	0.01 – 0.24
Musculoskeletal			
Congenital hip dislocation without hip dysplasia	146	4.78	4.01 – 5.56
Talipes equinovarus/clubfoot	506	16.57	15.13 – 18.02
Reduction defects of the upper limbs	116	3.80	3.11 – 4.49
Reduction defects of the lower limbs	62	2.03	1.56 – 2.60
Craniosynostosis	254	8.32	7.30 – 9.34
Achondroplasia	16	0.52	0.30 – 0.85
Diaphragmatic hernia	79	2.59	2.05 – 3.22
Omphalocele	60	1.97	1.50 – 2.53
Gastroschisis	169	5.54	4.70 – 6.37
Chromosomal			
Trisomy 21 (Down syndrome)	459	15.03	13.66 – 16.41
Trisomy 13 (Patau syndrome)	43	1.41	1.02 – 1.90
Trisomy 18 (Edwards syndrome)	63	2.06	1.59 – 2.64
Infants & fetuses with regular reportable birth defects	12,722	416.67	409.43 – 423.91

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

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Texas Birth Defects Registry (TBDR) Annual Report
Table R11. Prevalence of Selected Birth Defects, Region 11, 1999–2020

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Central Nervous System			
Anencephaly	291	3.38	2.99 – 3.77
Spina bifida without anencephaly	419	4.86	4.40 – 5.33
Encephalocele	100	1.16	0.94 – 1.41
Microcephaly, severe (head circ. <3rd percentile)	319	3.70	3.30 – 4.11
Holoprosencephaly	125	1.45	1.20 – 1.71
Hydrocephaly without spina bifida	806	9.36	8.71 – 10.00
Eye and Ear			
Anophthalmia	47	0.55	0.40 – 0.73
Microphthalmia	209	2.43	2.10 – 2.75
Cataract	88	1.02	0.82 – 1.26
Anotia or microtia	359	4.17	3.74 – 4.60
Cardiac and Circulatory			
Common truncus	97	1.13	0.91 – 1.37
Transposition of the great vessels	319	3.70	3.30 – 4.11
Double outlet right ventricle	260	3.02	2.65 – 3.38
Tetralogy of Fallot	421	4.89	4.42 – 5.35
Ventricular septal defect	8,370	97.15	95.07 – 99.24
Atrial septal defect	10,883	126.32	123.95 – 128.70
Atrioventricular septal defect (endocardial cushion defect)	385	4.47	4.02 – 4.92
Pulmonary valve atresia or stenosis	1,407	16.33	15.48 – 17.19
Tricuspid valve atresia or stenosis	205	2.38	2.05 – 2.71
Ebstein anomaly	98	1.14	0.92 – 1.39
Aortic valve stenosis	305	3.54	3.14 – 3.94
Hypoplastic left heart syndrome	188	2.18	1.87 – 2.49
Patent ductus arteriosus	9,801	113.76	111.51 – 116.02
Coarctation of the aorta	696	8.08	7.48 – 8.68
Respiratory			
Choanal atresia or stenosis	121	1.40	1.15 – 1.65
Agenesis, aplasia, or hypoplasia of the lung	349	4.05	3.63 – 4.48
Oral Clefts			
Cleft palate alone (without cleft lip)	480	5.57	5.07 – 6.07
Cleft lip with or without cleft palate	1,007	11.69	10.97 – 12.41
Gastrointestinal			
Tracheoesophageal fistula/esophageal atresia	201	2.33	2.01 – 2.66
Pyloric stenosis	1,867	21.67	20.69 – 22.65
Stenosis or atresia of the small intestine	327	3.80	3.38 – 4.21
Stenosis or atresia of large intestine, rectum, anal canal	537	6.23	5.71 – 6.76
Hirschsprung disease	96	1.11	0.90 – 1.36
Biliary atresia	64	0.74	0.57 – 0.95

Birth Defect (Body System)	Cases (count)	Prevalence (rate)	Confidence Interval (95% for Prevalence)
Genitourinary			
Hypospadias (among males)	1,962	44.57	42.60 – 46.54
Epispadias	79	0.92	0.73 – 1.14
Renal agenesis or dysgenesis	620	7.20	6.63 – 7.76
Bladder exstrophy	14	0.16	0.09 – 0.27
Musculoskeletal			
Congenital hip dislocation without hip dysplasia	166	1.93	1.63 – 2.22
Talipes equinovarus/clubfoot	1,496	17.36	16.48 – 18.24
Reduction defects of the upper limbs	358	4.16	3.73 – 4.59
Reduction defects of the lower limbs	157	1.82	1.54 – 2.11
Craniosynostosis	432	5.01	4.54 – 5.49
Achondroplasia	19	0.22	0.13 – 0.34
Diaphragmatic hernia	243	2.82	2.47 – 3.18
Omphalocele	217	2.52	2.18 – 2.85
Gastroschisis	536	6.22	5.69 – 6.75
Chromosomal			
Trisomy 21 (Down syndrome)	1,362	15.81	14.97 – 16.65
Trisomy 13 (Patau syndrome)	98	1.14	0.92 – 1.39
Trisomy 18 (Edwards syndrome)	246	2.86	2.50 – 3.21
Infants & fetuses with regular reportable birth defects	44,234	513.44	508.66 – 518.23

Prevalence (rate) is expressed as the number of cases per 10,000 live births.

Please see the Methods section of the Annual Report for additional information:
https://www.dshs.texas.gov/sites/default/files/birthdefects/annualreport/1999-2020-TBDR-Methods.pdf

Prepared by: Texas Birth Defects Registry, Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services, February 2024.

Texas Birth Defects Registry (TBDR) Annual Report
Appendix A. Texas Resident Live Births (Denominators), 1999–2020

Breakdown		Live Births	
		Total	Male*
Texas Resident Live Births, 1999–2020		8,444,795	4,316,006
By Mother's Age, 1999–2020	Less than 20 years	961,153	492,550
	20 to 24 years	2,192,958	1,119,112
	25 to 29 years	2,335,722	1,194,848
	30 to 34 years	1,883,332	961,862
	35 to 39 years	878,341	449,206
	40 or more years	192,670	98,122
	Unknown Age	619	306
By Mother's Race/Ethnicity, 1999–2020	White non-Hispanic	2,950,214	1,512,908
	Black non-Hispanic	971,651	494,358
	Hispanic	4,066,812	2,073,900
	Additional non-Hispanic	446,186	229,638
	Unknown Race/Ethnicity	9,932	5,202
By Infant/Fetal Sex, 1999–2020	Male	4,316,006	4,316,006
	Female	4,128,789	(N/A)
By Region of Mother's Residence at Delivery, 1999–2020	Region 1	272,464	139,178
	Region 2	156,959	80,410
	Region 3	2,251,878	1,152,868
	Region 4	316,207	161,900
	Region 5	219,188	112,126
	Region 6	2,084,245	1,063,656
	Region 7	935,913	478,375
	Region 8	837,451	427,481
	Region 9	203,652	104,338
	Region 10	305,324	155,488
	Region 11	861,514	440,186

Breakdown		Live Births	
		Total	Male*
By Delivery Year	1999	349,157	178,451
	2000	363,325	185,591
	2001	365,092	186,774
	2002	372,369	190,162
	2003	377,374	192,581
	2004	381,441	195,024
	2005	385,537	197,491
	2006	399,309	204,037
	2007	407,453	208,222
	2008	405,242	207,508
	2009	401,599	204,876
	2010	385,746	196,903
	2011	377,274	192,766
	2012	382,438	195,525
	2013	387,110	198,109
	2014	399,482	204,503
	2015	403,439	205,972
	2016	396,999	202,810
	2017	381,876	194,877
	2018	376,506	192,241
	2019	377,710	193,032
	2020	368,317	188,551

*Male live births are the denominators used for calculating the prevalence of hypospadias.

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Appendix B. Modified BPA Codes Used to Define Birth Defects

Diagnoses in the Texas Birth Defects Registry are coded using a system developed and provided by the National Center on Birth Defects and Developmental Disabilities (NCBDDD) of the Centers for Disease Control and Prevention (CDC). The six-digit birth defect codes, commonly called modified BPA codes, are based on the British Pediatric Association Classification of Diseases (1979) and the World Health Organization's International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (1979), with code modifications developed by the NCBDDD and by the Birth Defects Epidemiology and Surveillance Branch of the Texas Department of State Health Services.

The table below shows the birth defect codes used to define the conditions shown in this report.

Birth Defect	Modified BPA Codes
Anencephaly	740.000–740.100
Spina bifida without anencephaly	741.000–741.990, without 740.000–740.100
Encephalocele	742.000–742.090
Microcephaly	742.100, 742.486
Holoprosencephaly	742.260
Hydrocephaly without spina bifida	742.300–742.380 and 742.390, without 741.000-741.990
Anophthalmia	743.000
Microphthalmia	743.100
Cataract	743.320, 743.325, 743.326
Anotia or microtia	744.010, 744.210
Common truncus	745.000–745.010
Transposition of the great vessels	745.100–745.120, 745.180, 745.190
Double outlet right ventricle	745.130–745.150
Tetralogy of Fallot	745.200, 746.840
Ventricular septal defect	745.400–745.490
Atrial septal defect	745.510–745.590
Atrioventricular septal defect (endocardial cushion defect)	745.600–745.690
Pulmonary valve atresia or stenosis	746.000–746.010
Tricuspid valve atresia or stenosis	746.100, 746.106

Birth Defect	Modified BPA Codes
Ebstein anomaly	746.200
Aortic valve stenosis	746.300
Hypoplastic left heart syndrome	746.700
Patent ductus arteriosus	747.000
Coarctation of the aorta	747.100–747.190
Choanal atresia or stenosis	748.000
Agenesis, aplasia, or hypoplasia of the lung	748.500–748.510
Cleft palate alone (without cleft lip)	749.000–749.090
Cleft lip with or without cleft palate	749.100–749.220
Tracheoesophageal fistula/esophageal atresia	750.300–750.350
Pyloric stenosis	750.510
Stenosis or atresia of the small intestine	751.100–751.195
Stenosis or atresia of large intestine, rectum, or anal canal	751.200–751.240
Hirschsprung disease	751.300–751.340
Biliary atresia	751.650
Hypospadias	752.600–752.607, 752.620, 752.625–752.627
Epispadias	752.610
Renal agenesis or dysgenesis	753.000–753.010
Bladder exstrophy	753.500
Congenital hip dislocation without hip dysplasia	754.300 without 755.665–755.667
Talipes equinovarus/clubfoot	754.500, 754.730
Reduction defects of the upper limbs	755.200–755.290
Reduction defects of the lower limbs	755.300–755.390
Craniosynostosis	756.000–756.030
Achondroplasia	756.430
Diaphragmatic hernia	756.610–756.617
Omphalocele	756.700
Gastroschisis	756.710
Trisomy 21 (Down syndrome)	758.000–758.090
Trisomy 13 (Patau syndrome)	758.100–758.190
Trisomy 18 (Edwards syndrome)	758.200–758.290

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Appendix C. Glossary of Birth Defects and Related Terms

Achondroplasia A genetic dysplasia of cartilage and long bones caused by mutations in the gene FGFR3. It results in disproportionate short stature with short limbs and relatively more normal trunk size. Persons affected with achondroplasia can have abnormalities of the foramen magnum potentially causing damage to the upper spinal cord. Spinal canal stenosis is a problem starting in late adolescence. There may also be lumbar lordosis, limited elbow extension and early arthritis. People with achondroplasia typically have normal intelligence.

Agenesis Absence of part(s) of the body.

Agenesis, aplasia, or hypoplasia of the lung The absence or incomplete development of a lung or lung tissue.

Anencephaly Congenital absence of the skull, with cerebral hemispheres completely missing or reduced to small masses attached to the base of the skull. Anencephaly is not compatible with life.

Aniridia The complete absence of the iris of the eye or a defect of the iris. Can be congenital or traumatically induced.

Anomalies of the tricuspid valve Includes tricuspid valve atresia or stenosis, as well as enlargement, dilation, or aneurysm of the tricuspid valve. See also *tricuspid valve atresia or stenosis*.

Anophthalmia A developmental defect characterized by complete absence of the eyes, or by the presence of vestigial eyes.

Anotia A congenital absence of one or both ears.

Aorta The large arterial trunk that carries blood from the heart to be distributed by branch arteries through the body.

Aortic valve stenosis A cardiac anomaly characterized by a narrowing or stricture of the aortic valve. This condition causes abnormal cardiac circulation and pressure in the heart during contractions. This condition can be repaired surgically in some cases.

Atresia Imperforation; absence or closure of a normal opening.

Atrial septal defect A congenital cardiac malformation in which there are one or several openings in the atrial septum (muscular and fibrous wall between the right and left atria) allowing a mixing of oxygenated and unoxygenated blood. The openings vary in size and may resolve without treatment or may require surgical treatment. Also called *ostium secundum defect.*

Atrioventricular septal defect A variety of septal defects (malformations of the walls separating the two atria and two ventricles of the heart) resulting from imperfect fusion of the endocardial cushions in the embryonic heart. Also called *endocardial cushion defect*.

Atrium One of the two upper chambers of the heart (plural atria). The right atrium receives unoxygenated blood from the body. The left atrium receives oxygenated blood from the lungs.

Biliary atresia A congenital absence or underdevelopment of one or more of the ducts in the biliary tract. Correctable surgically.

Birth prevalence

$$\frac{\text{\# of birth defect cases in an area and time period}}{\text{\# of live births in the same area and time period}} \times 10{,}000$$

Bladder exstrophy Incomplete closure of the anterior wall of the bladder and the abdominal cavity. The upper urinary tract is generally normal. Often associated with anorectal and genital malformations, and epispadias. Affected persons are at a markedly increased risk of bladder carcinoma (squamous cell). This condition is usually corrected surgically after birth.

Cataract An opacity (clouding) of the lens of the eye.

Choanal atresia or stenosis A congenital anomaly in which a bony or membranous formation blocks the passageway between the nose and the pharynx. This defect is usually repaired surgically after birth. Bilateral choanal atresia is a surgical emergency.

Cleft lip The congenital failure of the fetal components of the lip to fuse or join, forming a groove or fissure in the lip. Infants with this condition can have difficulty feeding and may use assistive devices for feeding. This condition is corrected when the infant can tolerate surgery.

Cleft palate The congenital failure of the palate to fuse properly, forming a grooved depression or fissure in the roof of the mouth. This defect varies in degree of severity. The fissure can extend into the hard and soft palate and into the nasal cavities. Infants with this condition have difficulty feeding and may use assistive devices for feeding. Surgical correction is begun as soon as possible. Children with cleft palates are at high risk for hearing problems due to ear infections.

Clubfoot See *talipes equinovarus*.

Cluster An apparently unusual concentration of a health condition in a particular area and time period.

Coarctation of the aorta Localized narrowing of the aorta. This condition causes abnormal cardiac circulation and pressure in the heart during contractions. This condition can vary from mild to severe. Surgical correction is recommended even for mild defects.

Common truncus arteriosus A congenital heart defect in which the common arterial trunk fails to divide into pulmonary artery and aorta. This is corrected surgically.

Confidence interval (95%) The interval that contains the true prevalence which we can only estimate) 95% of the time. See Methods for more explanation.

Congenital Existing at or dating from birth.

Congenital hip dislocation A congenital defect in which the head of the femur does not articulate with the acetabulum of the pelvis because of an abnormal shallowness of the acetabulum. Treatment in early infancy consists of bracing of the joint to cause a deepening of the acetabulum.

Craniosynostosis A premature ossification (closing) of the cranial sutures before birth or soon after birth. This condition is occasionally associated with other skeletal defects. If no surgical correction is made, the growth of the skull is inhibited, and the head is deformed. The eyes and the brain are often damaged.

Diaphragmatic hernia A failure of the diaphragm to form completely, leaving a hole. Abdominal organs can protrude through the hole into the chest cavity and interfere with development of the heart and lungs. Usually life-threatening and requires emergent surgery.

Double outlet right ventricle A rare critical congenital heart defect in which the pulmonary artery and the aorta — the heart's two major arteries — both connect to the right ventricle. In a normal heart, the pulmonary artery connects to the right ventricle, and the aorta connects to the left ventricle. DORV creates a problem because the right ventricle carries oxygen-poor blood, which then gets circulated in the body. The mixture has less oxygen than the baby needs so the heart has to beat faster and harder to get enough oxygen to the body. Requires surgical treatment.

Down syndrome (Trisomy 21) The chromosomal abnormality characterized by an extra copy of chromosome 21. In rare cases this syndrome is caused by translocation. The extra copy can be free-lying, or can be attached to some other chromosome, most frequently number 14. Down syndrome can occur in mosaic, so that there is a population of normal cells and a population of trisomy 21 cells. Down syndrome is characterized by moderate to severe mental retardation, sloping forehead, small ear canals, flat bridged nose, and short fingers and toes. One third of infants have congenital heart disease, and one third have duodenal atresia. (Both can be present in the same infant.) Affected people can survive to middle or old age. There is an increased incidence of Alzheimer disease in adults with Down syndrome.

Dysgenesis Impaired or faulty development of part(s) of the body.

Ebstein anomaly A congenital heart defect in which the tricuspid valve is displaced downward into the right ventricle causing abnormal patterns of cardiac circulation.

Edwards syndrome (Trisomy 18) The chromosomal abnormality characterized by an extra copy of chromosome 18. The extra chromosome can be free lying or attached to another chromosome. Trisomy 18 can occur in mosaic. Edwards syndrome is characterized by mental retardation, neonatal hepatitis, low-set ears, skull malformation, and short digits. Cardiac and renal anomalies are also common. Survival for more than a few months is rare.

Embryogenesis The development and growth of an embryo, especially the period from the second through the eighth week after conception.

Encephalocele The protrusion of the brain substance through a defect in the skull.

Endocardial cushion defect See *Atrioventricular septal defect*.

Epispadias A congenital defect in which the urinary meatus (urinary outlet) opens above (dorsal to) the normal position. The urinary sphincters are defective, so incontinence does occur. Surgical correction is aimed at correcting incontinence and permitting sexual functioning. The corresponding defect in females is rare. See also *Hypospadias.*

Esophageal stenosis or atresia A narrowing or incomplete formation of the esophagus. Usually a surgical emergency. Frequently associated with a *tracheoesophageal fistula*.

Fetal alcohol syndrome A constellation of physical abnormalities (including characteristic abnormal facial features and growth retardation), and problems of behavior and cognition in children born to mothers who drank alcohol during pregnancy.

Fistula An abnormal passage from an internal organ to the body surface or between two internal organs or structures.

Folate B vitamin necessary for red blood cell production; folate deficiency can lead to anemia and, during embryogenesis, can affect the normal development of the fetus' neural tube; found in liver, green leafy vegetables, beans, beets, broccoli, cauliflower, citrus fruits, and sweet potatoes. *See folic acid.*

Folic acid One of the B vitamins especially important for a woman to take before conception to help prevent neural tube defects in a fetus; essential for DNA synthesis and therefore the growth and division of cells; obtained from fortified foods or from a multivitamin containing at least 4mg; also found in natural sources including liver, beans, and leafy green vegetables. While folate and folic acid are both forms of water-soluble B vitamins, folic acid refers to the synthetic vitamin used in supplements, whereas folate is the form found in foods.

Gastroschisis A congenital opening of the abdominal wall with protrusion of the intestines. This condition is surgically treated. Contrast with *Omphalocele*.

Hernia A protrusion of an organ or part through connective tissue or through a wall of the cavity in which it is normally enclosed.

Hirschsprung disease The congenital absence of autonomic ganglia (nerves controlling involuntary and reflexive movement) in the muscles of the colon. This results in immobility of the intestines and may cause obstruction or stretching of the intestines. This condition is repaired surgically in early childhood by the removal of the affected portion of the intestine.

Holoprosencephaly Failure of the brain to develop into two equal halves, so there is structural abnormality of the brain. here may be associated midline facial defects including cyclopia (fusion of the eye orbits into a single cavity containing one eye) in severe cases. About half the cases are probably due to a single gene defect (the HPE gene). Frequently occurs with *Trisomy 13*.

Hydrocephaly The abnormal accumulation of fluid within the spaces of the brain.

Hyperplasia Overgrowth characterize by an increase in the number of cells of a tissue.

Hypoplasia A condition of arrested development in which an organ or part remains below the normal size or in an immature state.

Hypoplastic left heart syndrome Atresia, or marked hypoplasia, of the aortic opening or valve, with hypoplasia of the ascending aorta and defective development of the left ventricle (with mitral valve atresia). This condition can be surgically repaired in a series of three procedures over a period of one year. Transplantation is also a treatment. This condition is usually fatal in the first month of life if not treated.

Hypospadias A congenital defect in which the urinary meatus (urinary outlet) is on the underside of the penis or on the perineum (area between the genitals and the anus). The urinary sphincters are not defective, so incontinence does not occur. The condition may be surgically corrected if needed for cosmetic, urologic, or reproductive reasons. The corresponding defect in women is rare. *See also epispadias.*

Limb defects See *reduction defects*.

Meninges Membranes that cover the brain and spinal cord.

Microcephaly The congenital smallness of the head, with corresponding smallness of the brain.

Microphthalmia The congenital abnormal smallness of one or both eyes. Can occur in the presence of other ocular defects.

Microtia A small or maldeveloped external ear and atretic or stenotic external auditory canal.

Mosaic In genetics, this refers to an individual organism that has two or more kinds of genetically different cell types. he degree of abnormality depends on the type of tissue containing affected cells. Individuals may vary from near normal to full manifestation of the genetic syndrome. Can occur in any chromosome abnormality syndrome.

Neural tube defect A defect resulting from failure of the neural tube to close in the first month of pregnancy. The major conditions include anencephaly, spina bifida, and encephalocele.

Obstructive genitourinary defect Stenosis or atresia of the urinary tract at any level. Severity of the defect depends largely upon the level of the obstruction. Urine accumulates behind the obstruction and damages the organs.

Omphalocele The protrusion of an organ into the umbilicus. The defect is usually closed surgically soon after birth. Contrast with Gastroschisis.

Ostium secundum defect See *atrial septal defect.*

Patau syndrome (Trisomy 13) The chromosomal abnormality caused by an extra chromosome 13. The extra copy can be free-lying or can be attached to some other chromosome. Patau syndrome can occur in mosaic so that there is a population of normal cells and a population of trisomy 13 cells. Patau syndrome is characterized by impaired midline facial development, cleft lip and palate, polydactyly, and mental retardation. Most infants do not survive beyond 6 months of life.

Patent ductus arteriosus A blood vessel between the pulmonary artery and the aorta. This is normal in fetal life, but can cause problems after birth, particularly in premature infants. This condition causes abnormal cardiac circulation and pressure in the heart during contractions. The vast majority close spontaneously and cause no problems. Medical or surgical correction may be done. This is only an abnormality if it causes significant medical problems.

Poisson regression A type of statistical analysis based on the Poisson distribution used to compare rates of rare occurrences such as birth defects between different population groups, different areas, or different times.

Prevalence With respect to the prevalence of birth defects, see *Birth prevalence*.

Pulmonary artery anomaly Abnormality in the formation of the pulmonary artery such as stenosis or atresia. See *common truncus*.

Pulmonary valve atresia or stenosis A congenital heart condition characterized by absence or constriction of the pulmonary valve. This condition causes abnormal cardiac circulation and pressure in the heart during contractions. This condition can vary from mild to severe. Mild forms are relatively well tolerated and require no intervention. More severe forms are surgically corrected.

Pyloric stenosis A narrowing of the pyloric sphincter at the outlet of the stomach. This causes a blockage of food from the stomach into the small intestine. Usually treated surgically.

Reduction defects of the lower limbs The congenital absence of a portion of the lower limb. There are two general types of defect, transverse and longitudinal. Transverse defects appear like amputations, or like missing segments of the limb. Longitudinal defects are missing rays of the limb (for example, a missing tibia and great toe).

Reduction defects of the upper limbs The congenital absence of a portion of the upper limb. There are two general types of defect, transverse and longitudinal. Transverse defects appear like amputations, or like missing segments of the limb. Longitudinal defects are missing rays of the limb (for example, a missing radius and thumb).

Renal agenesis or dysgenesis The failure, or deviation, of embryonic development of the kidney.

Spina bifida A neural tube defect resulting from failure of the spinal neural tube to close. The spinal cord and/or meninges may or may not protrude. This usually results in damage to the spinal cord with paralysis of the involved limbs. Includes myelomeningocele (involving both spinal cord and meninges) and meningocele (involving just the meninges).

Stenosis A narrowing or constriction of the diameter of a bodily passage or orifice.

Stenosis or atresia of large intestine, rectum, and anus The absence, closure or constriction of the large intestine, rectum, or anus. Can be surgically corrected or bypassed.

Stenosis or atresia of the small intestine A narrowing or incomplete formation of the small intestine obstructing movement of food through the digestive tract.

Talipes equinovarus (Clubfoot) A development disorder of the foot and ankle that affects one (unilateral) or both (bilateral) feet. The foot is in an incorrect anatomical position, and is inclined inward, axially rotated outward, and points downward. Clubfoot is a complex disorder that is caused by genetic and environmental influences.

Tetralogy of Fallot A congenital cardiac anomaly consisting of four defects: *ventricular septal defect*, *pulmonary valve stenosis or atresia*, displacement of the aorta to the right, and hypertrophy of right ventricle. The condition is corrected surgically.

Tracheoesophageal fistula An abnormal passage between the esophagus and trachea. Leads to pneumonia. Corrected surgically. It is frequently associated with *esophageal atresia*.

Translocation The rearrangement of genetic material within the same chromosome or the transfer of a segment of one chromosome to another one. People with balanced translocations do not always manifest genetic syndromes but may be carriers of genetic syndromes and can have children with unbalanced translocations. Can occur with any chromosomal anomaly syndrome.

Transposition of the great vessels A congenital malformation in which the aorta arises from the right ventricle and the pulmonary artery from the left ventricle (opposite of normal), so that the venous return from the peripheral circulation is recirculated without being oxygenated in the lungs. Immediate surgical correction is needed. When this is not associated with other cardiac defects, and not corrected, it is fatal.

Tricuspid valve atresia or stenosis A congenital cardiac condition characterized by the absence or constriction of the tricuspid valve. The opening between the right atrium and right ventricle is absent or restricted, and normal circulation is not possible. This condition is often associated with other cardiac defects. This condition is surgically corrected depending on the severity.

Trisomy A chromosomal abnormality characterized by one more than the normal number of chromosomes. Normally, cells contain two of each chromosome. In trisomy, cells contain three copies of a specific chromosome.

Trisomy 13 (Patau syndrome) The chromosomal abnormality caused by an extra chromosome 13. The extra copy can be free-lying or can be attached to some other chromosome. Trisomy 13 can occur in mosaic so that there is a population of normal cells and a population of trisomy 13 cells. Trisomy 13 is characterized by impaired midline facial development, cleft lip and palate, polydactyly, and mental retardation. Most infants do not survive beyond 6 months of life.

Trisomy 18 (Edwards Syndrome) The chromosomal abnormality characterized by an extra copy of chromosome 18. The extra chromosome can be free lying or attached to another chromosome. Trisomy 18 can occur in mosaic so that there is a population of normal cells and a population of trisomy 18 cells. Trisomy 18 is characterized by mental retardation, neonatal hepatitis, low-set ears, skull malformation, and short digits. Cardiac and renal anomalies are also common. Survival for more than a few months is rare.

Trisomy 21 (Down Syndrome) The chromosomal abnormality characterized by an extra copy of chromosome 21. In rare cases this syndrome is caused by translocation. The extra copy can be free-lying, or can be attached to some other chromosome, most frequently number 14. Trisomy 21 can occur in mosaic, so that there is a population of normal cells and a population of trisomy 21 cells. Trisomy 21 is characterized by moderate to severe mental retardation, sloping forehead, small ear canals, flat bridged nose, and short fingers and toes. One third of infants have congenital heart disease, and one third have duodenal atresia. (Both can be present in the same infant.) Affected people can survive to middle or old age. There is an increased incidence of Alzheimer disease in adults with Trisomy 21.

Truncus arteriosus See *Common truncus*.

Ventricle One of the two lower chambers of the heart (plural ventricles). The right ventricle sends blood to the lungs, and the left ventricle passes oxygen-rich blood to the rest of the body.

Ventricular septal defect (VSD) A congenital cardiac malformation in which there are one or several openings in the ventricular septum (muscular and fibrous wall between the right and left ventricle or right and left lower chambers of the heart) allowing a mixing of oxygenated and unoxygenated blood. The openings vary in size and may resolve without treatment or require surgical treatment.

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Appendix D. Birth Defect Cluster Investigations

In addition to routine data collection, the Birth Defects Epidemiology and Surveillance Branch conducts birth defect investigations throughout Texas. When a health care professional or a member of the public reports a seemingly unusual concentration of children with a particular type of birth defect — also called a "cluster" — we initiate an investigation to determine if there is a statistically significant elevation in the number of children with the birth defect of concern. More information about birth defect clusters and investigations can be found on our website at https://www.dshs.texas.gov/texas-birth-defects-epidemiology-surveillance/birth-defects-clusters.

Since 1994, 128 birth defect clusters have been investigated, as shown below. More detailed information can be obtained by contacting the Birth Defects Epidemiology and Surveillance Branch via email at birthdefects@dshs.texas.gov or by phone at 512-776-7232.

Number	Location	County	Region	Condition(s)	Status
1994.01	Bryan	Brazos	7	all birth defects	closed
1994.02	Dallas	Dallas	3	polydactyly	closed
1994.03	El Paso	El Paso	10	gastroschisis	closed
1994.04	El Paso	El Paso	10	microphthalmia	closed
1994.05	Granbury	Hood, Somervell	3	Down syndrome	closed
1994.06	McKinney	Collin	3	ear	closed
1994.07	Parkland Hospital	Dallas	3	multiple defects	closed
1994.08	San Antonio	Bexar	8	gastroschisis	closed
1994.09	San Antonio	Bexar	8	anophthalmia	closed
1994.10	Temple area	Bell, Brazos, Falls, Limestone, McClennan	7	gastroschisis	closed
1995.01	Dallas	Dallas	3	holoprosencephaly	closed
1995.02	Dawson County	Dawson	9	spina bifida	closed
1995.03	Eagle Pass	Maverick	8	neural tube defects	closed

Number	Location	County	Region	Condition(s)	Status
1995.04	Ellis County	Ellis	3	Down syndrome	closed
1995.05	Gaines and Dawson Counties	Gaines, Dawson	9	oral clefts	closed
1995.06	Houston	Harris	6	Down syndrome	closed
1995.07	The Woodlands	Montgomery	6	anencephaly	closed
1996.01	Cameron, Willacy, and Hidalgo Counties	Cameron, Willacy, Hidalgo	11	heart	closed
1996.02	Fabens	El Paso	10	heart	closed
1996.03	Grand Prairie	Dallas	3	multiple defects	closed
1996.04	Hood County	Hood	3	chromosomal	closed
1996.05	Kingsville	Kleberg	11	multiple defects	closed
1996.06	Lewisville	Denton	3	multiple defects	closed
1996.07	Nueces County	Nueces	11	anencephaly	closed
1996.08	Pantex	Armstrong, Carson, Potter, Randall	1	all birth defects	closed
1996.09	Travis and Bastrop Counties	Travis, Bastrop	7	anophthalmia	closed
1996.10	Vidor	Orange	5	multiple defects	closed
1997.01	Brazos County	Brazos	7	hypoplastic left heart syndrome	closed
1997.02	Bryan and College Station	Brazos	7	anencephaly	closed
1997.03	Conroe	Montgomery	6	anencephaly	closed
1997.04	Dallas	Dallas	3	neural tube defects	closed
1997.05	El Paso	El Paso	10	biliary atresia	closed
1997.06	El Paso	El Paso	10	multiple defects	closed
1997.07	Kelly Air Force Base	Bexar	8	multiple defects	closed
1997.08	Ozona	Crockett	9	oral clefts	closed
1998.01	Cameron County	Cameron	11	neural tube defects	closed

Number	Location	County	Region	Condition(s)	Status
1998.02	Ellis, Dallas, Johnson, Kaufman, Navarro, and Tarrant Counties	Ellis, Dallas, Johnson, Kaufman, Navarro, Tarrant	3, 7	multiple defects	closed
1998.03	Laredo	Webb	11	neural tube defects	closed
1998.04	Port Lavaca	Calhoun	8	gastroschisis	closed
1998.05	Presidio and Brewster Counties	Presidio, Brewster	10	oral clefts	closed
1998.06	San Angelo and Ballinger	Tom Green, Runnels	2, 9	heart	closed
1998.07	Tyler	Smith	4	Down syndrome	closed
1999.01	Bastrop County	Bastrop	7	anencephaly	closed
1999.02	Cameron and Hidalgo Counties	Cameron, Hidalgo	11	esophageal atresia	closed
1999.03	Collin and Denton Counties	Collin, Denton	3	neural tube defects	closed
1999.04	El Paso County	El Paso	10	neural tube defects	closed
1999.05	El Paso	El Paso	10	trisomy 18	closed
1999.06	North Austin	Travis	7	gastroschisis and omphalocele	closed
1999.07	Corpus Christi	Nueces	11	neural tube defects	closed
1999.08	Nueces County	Nueces	11	cyclopia	closed
1999.09	Roby	Fisher	2	multiple defects	closed
1999.10	San Angelo	Tom Green	9	agenesis of the corpus callosum	closed
1999.11	West Dallas	Dallas	3	multiple defects	closed
2000.01	Bryan	Brazos	7	anencephaly	closed
2000.02	Cedar Creek	Bastrop	7	Down syndrome	closed
2000.03	Houston area	Harris, Montgomery Chambers, Fort Bend, Angelina, Hardin, Colorado	6	spina bifida	closed

Number	Location	County	Region	Condition(s)	Status
2000.04	Lindale	Smith	4	oral clefts	closed
2000.05	Shelby County	Shelby	5	anencephaly	closed
2000.06	Williamson County	Williamson	7	agenesis of the corpus callosum	closed
2000.07	Zavalla	Angelina	5	multiple defects	closed
2001.01	Cedar Park	Williamson	7	multiple defects	closed
2001.02	Corpus Christi	Nueces	11	multiple defects	closed
2001.03	Nueces, San Patricio, and Kleberg Counties (originally Corpus Christi)	Nueces, San Patricio, Kleberg	11	multiple defects (15 specific birth defects)	closed
2001.04	Dallas and Tarrant Counties	Dallas, Tarrant	3	gastroschisis	closed
2001.05	Deer Park	Harris	6	multiple defects	closed
2001.06	Grayson County	Grayson	3	ventricular septal defect	closed
2001.07	Port Neches, Groves, and Nederland	Jefferson	5	all birth defects	closed
2001.08	Houston area	Harris	6	spina bifida	closed
2001.09	Kelly Air Force Base	Bexar	8	all birth defects	closed
2001.10	Laredo	Webb	11	neural tube defects	closed
2001.11	Odessa	Ector (only)	9	microtia	closed
2001.12	Dallas	Dallas	3	anencephaly	closed
2001.13	San Antonio and El Paso	Bexar, El Paso	8, 10	Williams syndrome	closed
2001.14	Tarrant County	Tarrant	3	triploidy	closed
2001.15	Tarrant, Dallas, Hood, and Young Counties	Tarrant, Dallas, Hood, Young	2, 3	diaphragmatic hernia	closed
2001.16	Travis and Williamson Counties	Travis, Williamson	7	gastroschisis	closed
2002.01	Houston	Harris	6	port wine stain	closed

Number	Location	County	Region	Condition(s)	Status
2002.02	Duval County	Duval	11	transposition of the great vessels	closed
2002.03	Ellis County	Ellis	3	anencephaly	closed
2002.04	Garland	Dallas	3	multiple defects	closed
2002.05	Washington County	Washington	7	Dandy-Walker variant	closed
2002.06	Laredo	Webb	11	multiple defects	closed
2003.01	Bee, Cameron, Hidalgo, Jim Wells, Kleberg, Nueces, San Patricio, Starr, Webb, and Willacy Counties	Bee, Cameron, Hidalgo, Jim Wells, Kleberg, Nueces, San Patricio, Starr, Webb, Willacy	11	gastroschisis	closed
2003.02	Dallas County	Dallas	3	all birth defects	closed
2003.03	East Texas	not determined	4	reduction defects of the upper limbs	closed
2003.04	Texas	all	all	intestinal duplication	closed
2004.01	El Paso	El Paso	10	gastroschisis	closed
2004.02	Salado	Bell	7	bladder exstrophy, gastroschisis	closed
2004.03	Medical City Hospital, Dallas	not determined	3	hypoplastic left heart syndrome	closed
2004.04	Odessa	Ector	9	plagiocephaly	closed
2005.01	Brownsville	Cameron	11	pyloric stenosis	closed
2005.02	McAllen	Hidalgo	11	Down syndrome	closed
2005.03	Lubbock	Lubbock	1	gastroschisis	closed
2005.04	Midlothian, Venus, and Cedar Hill	Ellis, Johnson, Dallas	3	all birth defects	closed
2005.05	North Texas (loosely defined)	*defined various ways, please see report*	see report	gastroschisis	closed

Number	Location	County	Region	Condition(s)	Status
2006.01	Zip code 77040 in Houston	Harris	6	all birth defects	closed
2006.02	Zip codes 78238 and 78240 in Leon Valley	Bexar	8	all birth defects	closed
2007.01	Midland	Midland	9	Down syndrome	closed
2007.02	Travis, Williamson, Hays, Bastrop, and Fayette Counties	Travis, Williamson, Hays, Bastrop, Fayette	7	gastroschisis	closed
2008.01	El Paso	El Paso	10	pyloric stenosis	closed
2009.01	Midland and Ector Counties	Midland, Ector	9	anencephaly	closed
2009.02	Brownwood	Brown	2	diaphragmatic hernia	closed
2009.03	Kyle	Hays	7	anotia or microtia	closed
2010.01	Weslaco and Mercedes (Knapp Medical Center)	Hidalgo	11	microtia	closed
2010.02	UTMB Galveston	Brazoria, Fort Bend, Galveston, Harris	6	atrial septal defect	closed
2010.03	Brazos County	Brazos	7	trisomy 18	closed
2011.01	University Medical Center, Lubbock; possibly also Covenant Medical Center	*based on patients' residence counties*	1	anencephaly, gastroschisis, trisomy 18	closed
2011.02	Bexar County	Bexar	8	all birth defects	closed
2011.03	Brownsville and Los Fresnos	Cameron	11	Down syndrome	closed
2012.01	John Peter Smith Hospital, Fort Worth	Tarrant	3	anencephaly	closed
2012.02	Huguley Memorial Hospital, south Fort Worth	Johnson, Tarrant	3	polydactyly, syndactyly	closed

Number	Location	County	Region	Condition(s)	Status
2012.03	Peterson Regional Medical Center (Kerrville) and Hill Country Memorial Hospital (Fredericksburg)	Kerr, Gillespie	8	clubfoot	closed
2012.04	Ellis County	Ellis	3	Down syndrome	closed
2013.01	El Paso	El Paso	10	anencephaly	closed
2014.01	San Jacinto River Waste Pits area	Harris, possibly Chambers (area defined by Census tracts)	6	all birth defects	closed
2014.02	Amarillo area	Potter, Randall	1	clubfoot	closed
2014.03	Odessa area	*to be determined*	9	atrial septal defect	closed
2015.01	Sulphur Springs area	Hopkins, Lamar	4	gastroschisis	closed
2017.02	Corpus Christi area	Nueces, San Patricio, Kleberg	11	all birth defects	closed
2017.03	Valley Baptist Hospital	Cameron	11	upper limb defects (hypoplastic arm related to amniotic band)	closed
2017.04	Dallas, one small area within Dallas	Dallas	3	hypoplastic left heart syndrome	closed
2018.01	Cameron County	Cameron	11	anencephaly	closed
2019.01	Tarrant County	Tarrant	3	all birth defects	closed
2019.02	Laredo	Webb	11	anencephaly	closed
2019.03	Harris County–10 Census tracts	Harris	6	all birth defects	closed
2019.04	Brownsville	Cameron	11	trisomy 18	closed
2023.01	Region 8	Not county specific	8	two-vessel cord	closed
2023.02	Regions 8 and 11	Bexar, Hidalgo	8, 11	cor triatriatum	closed

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Appendix E. Research Using Texas Birth Defects Registry Data

(n=477, *as of February 2024*)

2024 (n=3)

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